DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Avenue NE, P.O. BOX 90012
BELLEVUE, WA 98009-9012

DETERMINATION OF NON-SIGNIFICANCE

PROPONENT: KPG
DJ Dean, (206) 286-1640

LOCATION OF PROPOSAL: 3677 108th Avenue NE

DESCRIPTION OF PROPOSAL: Approval of a Critical Areas Land Use Permit to construct an elevator and stair tower with connecting pedestrian bridge to facilitate pedestrian and ADA access from the South Kirkland Park and Ride, to the Cross Kirkland Corridor trail. A critical area steep slope exists north of the existing parking garage and extends upward toward the Cross Kirkland Corridor trail. Impacts to the steep slope are minimal, with proposed vegetation restoration and enhancement post construction.

FILE NUMBERS: 16-136371-LO **PLANNER:** Laurie Tyler, Land Use Planner

The Environmental Coordinator of the City of Bellevue has determined that this proposal does not have a probable significant adverse impact upon the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030 (2) (C). This decision was made after the Bellevue Environmental Coordinator reviewed the completed environmental checklist and information filed with the Land Use Division of the Development Services Department. This information is available to the public on request.

☐ There is no comment period for this DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's office by 5:00 p.m. on ______________.

☒ This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS. There is a 14-day appeal period. Only persons who submitted written comments before the DNS was issued may appeal the decision. A written appeal must be filed in the City Clerk's Office by 5 p.m. on **11/2/2017**

☐ This DNS is issued under WAC 197-11-340(2) and is subject to a 14-day comment period from the date below. Comments must be submitted by 5 p.m. on ______. This DNS is also subject to appeal. A written appeal must be filed in the City Clerk's Office by 5:00 p.m. on ______________.

This DNS may be withdrawn at any time if the proposal is modified so as to have significant adverse environmental impacts; if there is significant new information indicating a proposals probable significant adverse environmental impacts (unless a non-exempt license has been issued if the proposal is a private project): or if the DNS was procured by misrepresentation or lack of material disclosure.

Eli Stern For Carol Helland   10/9/17
Environmental Coordinator   Date

OTHERS TO RECEIVE THIS DOCUMENT:

☒ State Department of Fish and Wildlife / Stewart.Reinbold@dfw.gov; Christa.Heller@dfw.wa.gov;
☒ State Department of Ecology, Shoreline Planner N.W. Region / Jobu461@ecy.wa.gov; sepaunit@ecy.wa.gov
☒ Army Corps of Engineers Susan.M.Powell@nws02.usace.army.mil
☒ Attorney General ecyolyef@atg.wa.gov
☒ Muckleshoot Indian Tribe Karen.Walter@muckleshoot.nsn.us; Fisheries.fileroom@muckleshoot.nsn.us

City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	Cross Kirkland Corridor (CKC) - South Kirkland Park & Ride
Proposal Address:	3677 108th Avenue NE
Proposal Description:	The applicant requests a Critical Areas Land Use Permit for modification of the critical area steep slope, the required seventy-five foot (75') steep slope critical area toe-of-slope structure setback as well as the fifty foot (50') top of slope buffer. The requested modifications are to allow for the construction of a new elevator and stair tower. The proposed tower will include a connecting pedestrian bridge to facilitate pedestrian and ADA access between the South Kirkland Park and Ride and the CKC.
File Number:	16-136371-LO
Applicant:	KPG – Gary Barber
Decisions Included:	Critical Areas Land Use Permit (Process II. LUC 20.30P)
Planner:	Laurie Tyler, Senior Planner
State Environmental Policy Act Threshold Determination:	**Determination of Non-Significance** Carol V. Helland, Environmental Coordinator Development Services Department
Director's Decision:	**Approval with Conditions** Michael A. Brennan, Director Development Services Department By: _____ Elizabeth Stead, Land Use Director Development Services Department

Application Date:	June 30, 2016
Notice of Application Publication Date:	July 28, 2016
Decision Publication Date:	October 19, 2017
Project Appeal Deadline:	November 2, 2017

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Comments on State Environmental Policy Act (SEPA) Determinations can be made with or without appealing the proposal within the noted comment period for a SEPA Determination. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

CONTENTS

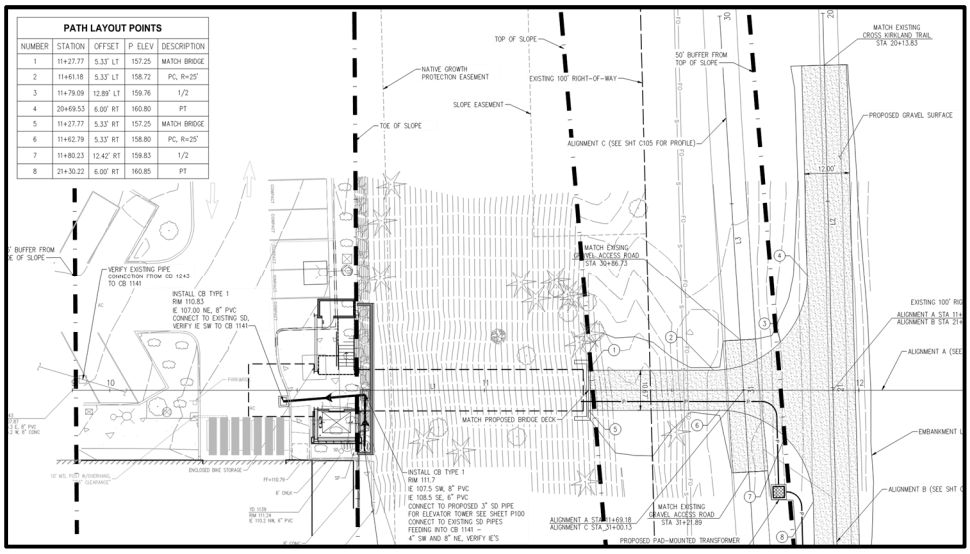
I. REQUEST AND REVIEW PROCESS

A. Request

The applicant is requesting approval of a Critical Areas Land Use Permit in order to construct an elevator and stair tower with connecting pedestrian bridge on property located at 3677 108th Avenue NE. The proposed structure will be stand alone and is proposed to be constructed adjacent to the north-east corner of the South Kirkland Park and Ride parking garage. The purpose of this structure is to facilitate pedestrian and ADA access from the South Kirkland Park and Ride property, up to the Cross Kirkland Corridor (CKC) trail.

A Critical Areas Steep Slope exists, running north-south, directly adjacent to the location of the proposed elevator and stair tower structure. A Critical Area Steep Slope is defined as slopes of 40% or more that have a rise of at least 10 feet and exceed 1,000 square feet in area. Steep slopes have a prescribed top-of-slope buffer of 50' and toe-of-slope structure setback of 75'. The proposed footprint of the tower structure would encroach approximately 5 feet into the critical area steep slope and approxiamteily 10 feet into the required 75' toe-of-slope structure setback. The top of the proposed pedestrian bridge would encroach approximately 4 feet into the critical area steep slope with a 50 foot temproary encroachment into the required 50' top-of-slope buffer. Therefore, the applicant requests modification of both the required 75' toe-of-slope structure setback and 50' top-of-slope buffer.

Figure 1 – Proposed Site Plan with Critical Areas



The proposed project is defined as an Essential Public Facility (EPF). The Revised Code of Washington (RCW) 36.70A.200 classifies a regional transportation facility as an essential public facility which the Land Use Code (LUC) formally accepts per LUC 20.50.018, Definitions. As an EPF, transportation facilities may be allowed in a critical area, critical area buffer or critical area structure setback. Applications for EPF's must still include analysis of critical area to be disturbed, along with necessary mitigation for such encroachments. As the proposed elevator and stair tower with connecting pedestrian bridge serves the South Kirkland Park and Ride facility, the applicant has provided analysis for this proposal which includes a vegetation restoration and enhancement plan for the critical area steep slope as well as for the areas of temporary disturbance.

Although development of an EPF is an allowed use per LUC 20.25H.055, a Critical Areas Land Use Permit (LUC 20.25H.230) is still required to modify critical slopes and/or a required buffer and/or structure setback. In addition, a Land Use Exemption from Design Review will also be required, as the proposal is located within the Single-Family Transition Area Design District. The applicant has applied for a Land Use Exemption to meet this requirement (#16-103849-LJ).

B. Review Process

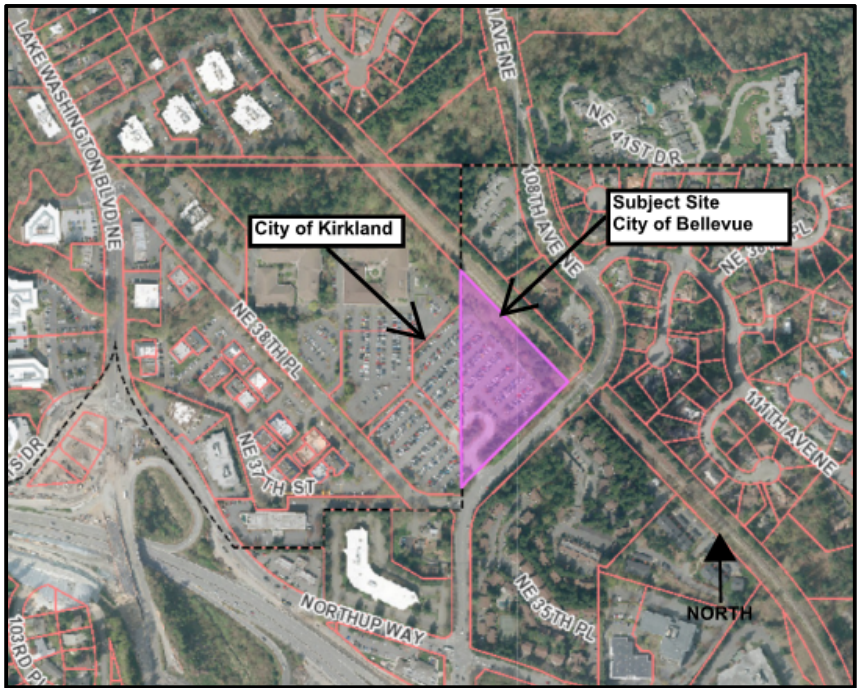
A Critical Areas Land Use Permit is a Process II application (LUC 20.35.200) with an administrative decision by the Director of Development Services (LUC 20.30V). The SEPA Determination is also a Process II decision, with an administrative decision by the Environmental Coordinator. Any appeal of a Process II decision is heard and decided upon by the City of Bellevue Hearing Examiner.

II. SITE DESCRIPTION, ZONING, LAND USE AND CRITICAL AREAS

A. Site Description

The South Kirkland Park and Ride is split between two jurisdictions: the City of Kirkland and City of Bellevue. See aerial below. This parcel was created in 1978 as part of a short plat (Lot D, SP 78-8-1) which was processed by the City of Kirkland. King County Metro has operated this park and ride facility at this location since 1979. The Bellevue portion of the park and ride site was recently upgraded in 2012-2013 with a new 3 ¼ story, 158,364 square foot parking garage which contains 534 parking stalls. Revisions to the existing surface parking lot included re-striping, new landscaping and construction of a new gateway including roadway and street frontage upgrades and a gateway plaza. At the same time, improvements to the City of Kirkand portion of the site included a mixed-use housing development, which has been completed.

Figure 2 – Aerial Map of Subject Site



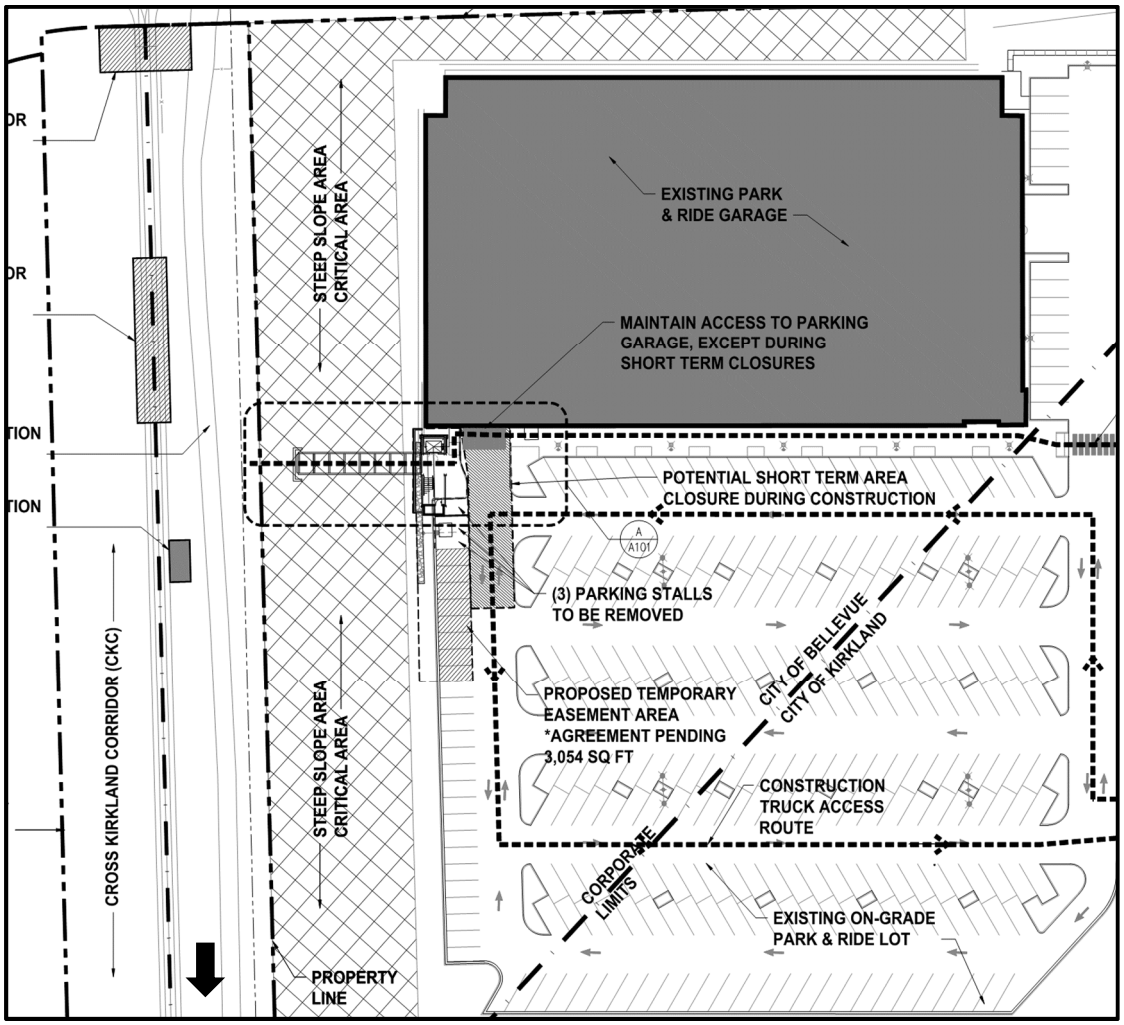
The site is 3.8 acres, or 168,147 square feet in size. Site topography descends to the west with approximately 26 feet of elevational change across the site. Critical areas exist on this site, as identified by the geotechnical report prepared by GeoDesign, Inc. dated August 10, 2017. In its report, GeoDesign Inc. identified a steep slope between the existing parking garage and the CKC trail. The slope inclination is generally between 50 to 60% and approximately 40 to 50 feet in height. The steep slope extends to the west and east of the project area. A copy of this Geotechnical Report can be located in the project file. In order to protect the slope from further development, the subject slope was placed into a Native Growth Protection Easement (NGPE) as part of a previous approval to construct the park and ride facilty.

The steep slope is currently vegetated with plantings for slope stability and erosion control, but contains invasive species such as Himalayan blackberry and English Ivy. Below the slope, the site is currently improved with the existing parking garage and surface parking areas.

The location of the proposed elevator and stair tower would remove 3 surface parking stalls adjacent to the parking garage and result in the relocation of an existing bike storage facility. The top of the pedestrian bridge component would impact both the critical area steep slope and result in temporary disturbance of the top of slope buffer. Grading at the top of the slope to lower the height of the slope is necessary to decrease the required tower height, stay in conformance with ADA standards with regards to the slope of the bridge and the connection to the CKC trail.

It should be noted that as part of the previous approval to construct the park and ride facility, the critical area steep slope was placed into a Native Growth Protection Easement (NGPE) which is reflected in the underlying City of Kirkland short plat (King Co. Recording #2012082890002). Typically, disturbance or structures are not permitted within an established NGPE designated area unless authorized by the City. Although the subject proposal to construct an ADA pedestrian bridge was not included in the original park and ride approval, it was contemplated during design review of the overall park and ride facility, reviewed and approved in 2012. As part of that design, it was anticipated that there would be a future connection from the park and ride to the trail corridor through the NGPE. Given this expectation, and due to the minor nature of encroachment into the critical area steep slope, tied with the fact that the proposal is an Essential Public Facility (EPF), review and approval of these specific minor impacts to the NGPE can be accomplished under this Critical Areas Land Use Permit without the need to amend the NGPE boundaries in the underlying short plat or through the recording of additional agreements.

Figure 3 – Overall Site Plan



B. Zoning and Land Use Context

The subject site is zoned Multi-Family Residential (R-15) and is located within the North Bellevue Subarea. A portion of the site contains the Single-Family Transition Overlay. The property has a Comprehensive Plan designation of Multi-Family – Medium (MF-M) density. The site is surrounded by park and ride facilities to the west, multi-family to the north, office to the east and multi-family to the south.

C. Critical Areas Functions and Values

i. Geologic Hazard Areas

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backgdrop for urbanized areas enhancing propery values and buffering urban development.

III. CONSISTENCY WITH LAND USE AND CRITICAL AREAS CODE REQUIREMENTS

A. Land Use District Dimensional Requirements

The site is located in the R-15 land use district with a portion of the Transition Area Design District Overlay. The plans submitted generally demonstrate conformance with these standards. However, as part of the building permit the applicant will be required to comply with all applicable Land Use Code standards prior to City approval.

B. Critical Areas Requirements LUC 20.25H: Consistency with Uses and Development Allowed Within Critical Areas Performance Standards – 20.25H.055.C.2

New or expanded facilities and systems are allowed within the critical area or critical areas buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A determination of technically feasible alternatives will consider:

- The location of existing infrastructure;
- The function or objective of the proposed new or expanded facility or system;
- Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities outside of the critical area;
- Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and
- The ability of both permanent and temporary disturbance to be mitigated.

Response: *The proposed bridge structure will provide ADA access between the King County/Sound Transit Park and Ride facility and the Cross Kirkland Corridor trail located above it. Due to structural limitations, the span length of the bridge and the existing infrastructure located at the top of the slope (eastside CSO and fiber optic utilities), it is necessary to construct the foundation within the existing steep slope area to support the bridge. The proposed area of disturbance where site grading and foundation construction will take place is approximately 1,200 square feet in size, and is limited to the upper portion of the slope as the majority of the elevator and stair tower will occur within previously disturbed (paved) area at the bottom of the slope. There is no feasible alternative location or configuration to achieve connection between the CKC trail down to the Park and Ride without impacting the critical area slope at any given location. Alternative connector path alignments along this slope were determined to result in greater disturbance within the critical area buffer from what is proposed. Overall, the proposed project will result in a beneficial cumulative effect on the adjacent critical areas, primarily through*

reduction in the height of the slope combined with proposed restoration and enhancement native plantings within the permanent and temporary disturbance areas of the project.

If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following:

- Location and design shall result in the least impacts on the critical area or critical area buffer;

  Response: *The applicant explored other locations along the critical area steep slope to determine where the least amount of impact would result in making the appropriate ADA connection between the CKC trail and the park and ride facilty below. Permanent steep slope impacts are limited to approximately 138 square feet to install the bridge supports at the top and bottom of the slope.*

- Disturbance of the critical area and critical are buffer, including disturbance of vegetation and soils, shall be minimized;

  Response: *Permanent steep slope impacts are limited to 138 square feet. Permanent steep slope buffer impacts are limited to 1,051 square feet.*

- Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any species of local importance unless no other technically feasible location exists;

  Response: *Not applicable as the proposed project is not located near a stream or stream buffer.*

- Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance…;

  Response: *Not applicable as the proposed project is not located near a wetland or stream.*

- All work shall be consistent with applicable City of Bellevue codes and standards;

  Response: *The proposed project will be consistent with all applicable City of Bellevue codes and standards. Final review for consistency will occur during review of the subsequent clear and grade and building permits for the project.*

- The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;
  Response: *Not applicable as the proposed project is not located near an aquatic area.*

- Associated parking and other support functions, including, for example, mechanical

equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and

Response: *Impacts to parking and other support functions, including the relocated bike storage lockers are located outside of the critical area steep slope, but will remain within the 75' toe of slope critical area structure setback as no other feasible alternative location exists due to the existing design and configuration of the park and ride facility.*

- Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

Response: *A restoration and enhancement planting plan has been prepared for both permanent and temporary disturbance impacts within the critical area steep slope and adjacent buffers.*

C. Critical Areas Requirements LUC 20.25H: Consistency with Land Use Code Critical Areas Performance Standards for Steep Slopes – 20.25H.125.

The project is subject to the following performance standards in design of a project, where applicable:

- Structures and improvements shall minimize alterations to the natural contour of the slope, and foundations shall be tiered where possible to conform to existing topography;

Response: *The proposed bridge foundation elements are located near the top of the slope to minimize alternations to the natural contours of the existing slope. The foundation elements and approach path have been located to minimize disturbance and reduce impacts to existing vegetation.*

- Structures and improvements shall be located to preserve the most critical portion of the site and its natural landsforms and vegetation;

Response: *The proposed location of the foundation supports were chosen to minimize the amount of impact to the steep slope and adjacent buffers in order to maintain the majority of the natural contours and native tree canopy within the critical area.*

- The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties;

Response: *As discussed in the Geotechnical Report, prepared by GeoDesign, dated August 10, 2017, the proposal will not result in greater risks or a need for an increased buffer on neighboring properties. Slope stability analysis of the post-construction conditions indicate a slight increase in the factor of safety, likely due to grading and removal of soil at the top of the slope.*

- The use of retaining walls that allow the maintenance of existing natural slope area is preferred over graded artificial slopes where graded slopes would result in increased disturbance as compared to use of retaining wall;

  Response: *A portion of an existing rockery wall at the base of the slope located within the crtical area and the 75' toe of slope structure setback would be modified and replaced with a 4'-10" wide by 8' high concrete retaining wall to support the elevator and stair tower. Replacement of the existing rockery to support the bridge tower will allow for the maintenance of the existing natural steep slope area.*

- Development shall be designed to minimize impervious surfaces within the critical area and critical area buffer;

  Response: *The proposal limits new impervious surfaces to just the foundation supports (138 square feet) within the critical area steep slope. However, in order to meet ADA accessibility from the corridor trail to the pedestrian bridge, a hardscape path is required within the 50' top of slope buffer where grading will occur. This equates to approximately 1,051 square feet of permanent steep slope buffer impact.*

- Where change in grade outside the building footprint is necessary, the site retention system should be stepped and regrading should be designed to minimize topographic modification. On slopes in excess of 40 percent, grading for yard area may be disallowed where inconsistent with this criteria;

  Response: *The proposed re-grading of the berm at the top of the slope results in a cut of approximately 5 feet that is supported by the bridge abutment wall and includes a cut through the existing berm at the top of the slope. Where cuts are required for the connecting path between the CKC trail and the bridge to meet ADA standards, slope inclincations are used that have adequate stability, are of limited height, and will be stabilized with ground cover and permanent vegetation following construction.*

- Building foundation walls shall be utilized as retaining walls rather than rockeries or retaining structures built separately and away from the building wherever feasible. Freestanding retaining devices are only permitted when they cannot be designed as structural elements of the building foundation;

  Response: *As previously discussed, a portion of an existing rockery wall at the base of the slope will be modified to a concrete retaining wall at approximately the same height as the rockery to support the bridge tower. If the proposed wall was shifted further west into the existing disturbed parking area and outside of the critical area, the foundation supports at the top of the slope would result in more impact to the critical area steep slope as it would pull the supports out of the berm and closest to the top of slope buffer.*

- On slopes in excess of 40 percent, use of pole-type construction which conforms to the

existing topography is required where feasible. If pole-type construction is not technically feasible, the structure must be tiered to conform to the existing topography and to minimize topographic modification;

Response: *As discussed in the Geotechnical Report prepared by GeoDesign, dated August 10, 2017, at the top of the slope, the bridge foundation and abutmant wall will be supported on two drilled shafts located on the steep slope. These deep shafts are approximately 53 feet deep with a primarily vertical compressive load and a minimal lateral component.*

- On slopes in excess of 40 percent, pile deck support structures are required where technically feasible for parking or garages over fill-based construction types; and

  Response: *Not applicable as this proposal is not for parking or a parking garage.*

- Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

  Response: *A restoration and enhancement planting plan has been prepared for both permanent and temporary disturbance impacts within the critical area steep slope and adjacent buffers.* **Refer to Section X for related Conditions of Approval.**

IV. PUBLIC NOTICE AND COMMENT

Application Date:	June 30, 2016
Public Notice:	July 28, 2016
Minimum Comment Period:	August 11, 2016

The Notice of Application for this project was published in the City of Bellevue Weekly Permit Bulletin and Seattle Times on July 28, 2016. It was mailed to property owners within 500 feet of the project site. No comments have been received from the public as of the publication of this decision.

V. SUMMARY OF TECHNICAL REVIEWS

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with the Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed project and has approved the application.

VI. STATE ENVIRONMENTAL POLICY ACT (SEPA)

The environmental review indicates no probability of significant adverse environmental impacts

occurring as a result of this proposal. The Environmental Checklist submitted with the application adequately discloses expected environmental impacts associated with the project. The City codes and requirements, including the Clear and Grade Code, Utility Code, Land Use Code, Noise Ordinance, Building Code and other construction codes are expected to mitigate potential environmental impacts. Therefore, issuance of a Determination of Non-Significance (DNS) is the appropriate threshold determination under the State Environmental Policy Act (SEPA) requirements.

A. Earth and Water

The site contains a critical area steep slope which faces west and runs north south along the eastern boundary of the subject site. The slope is approximately 50-60% in inclincation and approximately 40-50 feet in height.

The surface of the slope is fairly regular, indicating that it has likely been modified by past grading activities. The subsurface soil conditions at the top of the slope consist of a layer of medium dense, silty sand with gravel overlying very dense, silty sand with gravel and very dense sand. No large scale earthmoving activity is proposed with this application as the only area of re-grading is at the top of the slope/berm which will be lowered 5 feet with an approximately 1,200 squfare feet of disturbance at the top of the slope where the bridge will connect to the existing CKC trail.

A geotechnical investigation and engineering study was conducted to determine the impact-minimization measures for the project. The applicant provided a copy of the study, prepared by GeoDesign, Inc. dated August 10, 2017, a copy of which is located in the project file. The study concluded that the project is feasible if the guidelines outlined in the report for design and construction are followed. Erosion and sedimentation control requirements and BMPs will be reviewed by the Clearing and Grading Department as part of the required clearing and grading permit.

B. Plants

The existing vegetation within the slope is comprised of Douglas fir and Madrone trees with a relatively sparse cover of understory and groundcover that includes Himalayan blackberry, bracken fern and English ivy which provide slope stability. The proposed restoration and enhacement planting plan incorporates removal of the non-native plants and 2 trees and replanting with a variety of native shrubs and groundcover species, along with 26 replacement trees. The primary goal of the restoration and enhancement plan is to increase the habitat functions of the slope and it's buffer while continuing to stabilize the slope. The final restoration and enhancement plan for both temporary and permanent disturbance will be reviewed and approved prior to approval of the subsequent clear and grade and building permits for the proposed pedestrian bridge. **Refer to Section X for related Conditions of Approval.**

C. Noise

The site is in close proximity to single-family residences whose residents are most sensitive to disturbance from noise during evening, late night and weekend hours when they are likely to be at home. Any noise generated by the proposal will be regulated by the City's Noise Ordinance

(BCC 9.18). **Refer to Section X for related Conditions of Approval.**

VII. CHANGES TO THE PROPOSAL DUE TO STAFF REVIEW

- Requested mitigation for the temporary disturbance within the top of slope buffer where the grade will be lowered to meet structural bridge requirements and ADA access to the CKC trail.
- Requested confirmation that the loss of 3 parking stalls to facilitate the proposed elevator and stair tower of the bridge would not impact the overall parking function of the park and ride facility.
- Requested the proposed restoration/enhancement plantings be increased to meet minimum spacing and density requirements.

VIII. CRITICAL AREAS LAND USE PERMIT DECISION CRITERIA

The Director may approve, or approve with modifications an application for a Critical Areas Land Use Permit if (LUC 20.30P.140):

1. The proposal obtains all other permits required by the Land Use Code;

Finding: The applicant must obtain a land use exemption, a building permit and clear and grade permit in order to execute the project. **Refer to Section X for related Conditions of Approval.**

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

Finding: Section 6.0 of the geotechnial report, prepared by GeoDesign and dated August 10, 2017 included a number of design recommendations for the project that should be incorporated into the design and implemented during construction of the proposed development. These design recommendations led to the proposed location of the pedestrian bridge that would result in the least amount of impact to the critical area steep slope. In addition, the proposal incorporates both restoration and enhancement plantings within the critical area steep slope and 50' top of slope buffer to mitigate for both the permanent and temporary impacts of the placement of the pedestrian bridge toward the top of the steep slope.

3. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable;

Finding: Performance standards related to steep slopes are being met by this proposal as described in Section III above.

4. The proposal will be served by adequate public facilities including streets, fire protection, and utilities;

Finding: The project will be served by adequate public facilities which currently exist on and adjacent to the subject site.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210;

Finding: The applicant has prepared a restoration and enhancement planting plan to mitigate for the impacts to the critical area steep slope and 50' top of slope buffer consistent with LUC 20.25H.210. The vegetation currently established on the steep slope is mostly invasive. The restoration plan proposes to remove the invasive species and re-establish native trees, shrubs and groundcover appropriate for a shaded steep slope area. **Refer to Section X for related Conditions of Approval.**

6. The proposal complies with other applicable requirements of this code.

Finding: As discussed within this report, the proposal will comply with all applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, SEPA, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposal to modify the critical area steep slope, the required 75-foot critical area toe of slope structure setback and the 50' top of slope buffer, to allow for the encroachment of a pedestrian bridge to facilitate pedestrian and ADA access from the South Kirkland Park and Ride property, up to the Cross Kirkland Corridor (CKC) trail.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code- BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code- BCC 20.25H	Laurie Tyler, 425-452-2728
Noise Control- BCC 9.18	Laurie Tyler, 425-452-2728

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1. Building Permit Required: Approval of this Critical Areas Land Use Permit does not constitute an approval of a development permit. Plans submitted as part of the permit application shall be consistent with the plans reviewed for this approval.

Authority: Land Use Code 20.30P.140
Reviewer: Laurie Tyler, Development Services Department

2. Noise Control: Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Laurie Tyler, Development Services Department

3. Rainy Season Restrictions: No clearing and grading activity may occur during the rainy season, which is defined as October 1 through April 30 without written authorization of the Development Services Department. Should approval be granted for work during the rainy season, increased erosion and sedimentation measures, representing the best available technology must be implemented prior to beginning or resuming site work.

Authority: Bellevue City Code 23.76.093.A,
Reviewer: Savina Uzunow, Clearing and Grading

4. Geotechnical Recommendations: All recommendations from the geotechnical engineering report, prepared by GeoDesign Inc., dated August 10, 2017 shall be incorporated into the project and followed as needed.

Authority: Land Use Code 20.30P.140
Reviewer: Laurie Tyler, Development Services Department

5. Pesticides, Insecticides, and Fertilizers: The applicant must submit as part of the required construction permit, information regarding the use of pesticides, insecticides, and fertilizers in accordance with the City of Bellevue's "Environmental Best Management Practices".

Authority: Land Use Code 20.25H.220.H
Reviewer: Laurie Tyler, Development Services Department

6. Land Use Inspection: Following installation of the restoration planting, the applicant shall contact Land Use Staff to inspect the restoration enhancement area. Staff shall verify the quantity and quality of the proposed plants to be installted, and that the restoration area is in a healthy and growing condition.

Authority: Land Use Code 20.30P.140
Reviewer: Laurie Tyler, Development Services Department

7. Restoration for Temporary Disturbance Outside of Allowed Impact Area: All temporary impacts outside of this allowed impact area must be identified on the approved site plans and shall only be allowed when no feasible alternative exists. All areas of temporary disturbance shall be photo documented before disturbance occurs and shall be resotred to the original condition subject to the approved mitigation, restoration, maintenance and monitoring plan. All restored areas of temporary disturbance are subject to 3 years of maintenance and monitoring.

Authority: Land Use Code 20.25H.220.H
Reviewer: Laurie Tyler, Development Services Department

8. Restoration Plan: Plans submitted under the clearing and grading and building permits for restoration and enhancement shall be consistent with this approval and the restoration plans found as attachement 4. All temporary disturbance is required to be restored.

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: Laurie Tyler, Development Services Department

9. Maintenance and Monitoring: The planting area shall be maintained and monitored for 3 years as expressed in the Vegetation Management Plan, prepared by Altmann Oliver Associates included as attachment 2. Annual monitoring reports are to be submitted to Land Use each of the three years. Photos from selected photo points will be included in the monitoring reports to document the planting. The reports, along with a copy of the planting plan, can be sent to Laurie Tyler at ltyler@bellevuewa.gov or to the address below:

Environmental Planning Manager
Development Services Department
City of Bellevue
PO Box 90012
Bellevue, WA 98009-9012

Authority: Land Use Code 20.30P.140; 20.25H.220
Reviewer: Laurie Tyler, Develoment Services Department

Attachments
1. Environmental Checklist
2. Vegetation Management Plan
3. Project Drawings
4. Mitigation, Restoration and Enhancement Plan
5. Geotechnical Report

City of Bellevue Submittal Requirements	27

ENVIRONMENTAL CHECKLIST

10/9/2009

Thank you in advance for your cooperation and adherence to these procedures. If you need assistance in completing the checklist or have any questions regarding the environmental review process, please visit or call Development Services (425-452-6800) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Assistance for the hearing impaired: Dial 711 (Telecommunications Relay Service).

INTRODUCTION

Purpose of the Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21c RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the City of Bellevue identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the City decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Answer the questions briefly, with the most precise information known, or give the best description you can. You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer or if a question does not apply to your proposal, write "do not know" or "does not apply." Giving complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the Planner in the Permit Center can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. Include reference to any reports on studies that you are aware of which are relevant to the answers you provide. The City may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impacts.

Use of a Checklist for Nonproject Proposals: *A nonproject proposal includes plans, policies, and programs where actions are different or broader than a single site-specific proposal.*

For nonproject proposals, complete the Environmental Checklist even though you may answer "does not apply" to most questions. In addition, complete the Supplemental Sheet for Nonproject Actions available from Permit Processing.

For nonproject actions, the references in the checklist to the words *project*, *applicant*, and *property* or *site* should be read as *proposal*, *proposer*, and *affected geographic area*, respectively.

Attach an 8 ½" x 11 vicinity map which accurately locates the proposed site.

BACKGROUND INFORMATION

Property Owner: King County - Transit

Proponent: City of Kirkland - Public Works Department

Contact Person: Frank D. Reinart, P.E. - Project Engineer
(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: 123 Fifth Avenue
Kirkland, WA 98033-6189

Phone: (425) 587-3826

Proposal Title: Cross-Kirkland Corridor Connection @ South Kirkland Park & Ride

Proposal Location: 10800 NE 38th Street, Bellevue, WA **3677 108th Avenue NE`**
(Street address and nearest cross street or intersection) Provide a legal description if available.

Please attach an 8 ½" x 11" vicinity map that accurately locates the proposal site. **See attached.**

Give an accurate, brief description of the proposal's scope and nature:

1. General description: Construct an ADA-compliant stair & elevator tower w/ pedestrian footbridge for direct access from the Cross Kirkland Corridor (CKC) to the South Kirkland Park & Ride.
2. Acreage of site: 3.86 acres **The proposed tower is exterior to the existing garage.**
3. Number of dwelling units/buildings to be demolished: None
4. Number of dwelling units/buildings to be constructed: None
5. Square footage of buildings to be demolished: None
6. Square footage of buildings to be constructed: 470 s.f.
7. Quantity of earth movement (in cubic yards): 185 c.y.
8. Proposed land use: Transit-oriented development (Metro Transit Center and related development)
9. Design features, including building height, number of stories and proposed exterior materials:
   2-story structure; 59'-10" high; painted steel and glazed aluminum curtainwall
10. Other

Estimated date of completion of the proposal or timing of phasing:

June 30, 2017. **Subject to change.**

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

None anticipated at this time.

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List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

No Historic Properties Letter, South Kirkland TOD Elevated Pedestrian Bridge Project, Washington State Department of Archaeology & Historic Preservation, August, 2014

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known.

No.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known.

Clearing & Grading Permit 16-131657-GD

Building Permit (City of Bellevue) **16-131901-BM**
Design Review Approval (City of Bellevue) **16-102849-LJ**
Critical Areas Review (City of Bellevue) **Subject permit 16-136371-LO**

Please provide one or more of the following exhibits, if applicable to your proposal.
(Please check appropriate box(es) for exhibits submitted with your proposal):

☐ Land Use Reclassification (rezone) Map of existing and proposed zoning

☐ Preliminary Plat or Planned Unit Development
Preliminary plat map

☐ Clearing & Grading Permit
Plan of existing and proposed grading
Development plans

☑ Building Permit (or Design Review)
Site plan
Clearing & grading plan

☐ Shoreline Management Permit
Site plan

A. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: ☐ Flat ☐ Rolling ☐ Hilly ☑ Steep slopes ☐ Mountains ☐ Other

b. What is the steepest slope on the site (approximate percent slope)? > 40%

c. What general types of soil are found on the site (for example, clay, sand, gravel, peat, and muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Native soil in the area is Alderwood gravelly sandy loam underlain with glacial till.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No indications of history of unstable solis are known to be in the immediate vicinity of the project.

LT
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e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Minimal (if any) fill will be required for this project. Any fill required will be obtained from approved sources.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Shoring at the retaining wall will be installed so as to minimize potential erosion during construction phase.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Since siting of the 1st floor landing occurs on existing impervious area, net change is calculated as .0076 percent additional impervious area being added to the existing site.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Implementation of Temporary Erosion & Sedimentation Control (TESC) measures, as required by the city of Bellevue, during the construction phase.

2. AIR

a. What types of emissions to the air would result from the proposal (i.e. dust, automobile odors, and industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

The proposal would produce some air emissions as a result of the use of equipment during the construction phase, but would not result in any type of significant emissions to the air upon completion.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None.

c. Proposed measures to reduce or control emissions or other impacts to the air, if any:

None.

3. WATER

a. Surface

(1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Cochran Springs Creek is located approximately 450 feet to the northwest. This creek flows into Yarrow Bay Wetlands, roughly 1,200 feet to the west of the site.

(2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If Yes, please describe and attach available plans.

No.

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(3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

Project subject to Utility Code BCC 24.06 and any required utility permits.

(4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

(5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No materials will be discharged to surface waters. All construction stormwater will meet stringent water quality standards prior to any such discharge.

b. Ground

(1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description.

No.

(2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None.

c. Water Runoff (Including storm water)

(1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Runoff created by the project would be from tower and bridge structure roofs. It will will be collected and channeled to the existing storm drain system at the site.

(2) Could waste materials enter ground or surface waters? If so, generally describe.

The potential for this to occur during the construction phase will be controlled through implementation of a Stormwater Pollution Prevention Plan, as required by City of Bellevue and NPDES requirements.

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d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Implementation of a Stormwater Pollution Prevention Plan during the construction phase, as per City of Bellevue and the NPDES requirements.

4. Plants

a. Check or circle types of vegetation found on the site:

- [x] deciduous tree: alder, maple, aspen, other
- [x] evergreen tree: fir, cedar, pine, other
- [x] shrubs
- [x] grass
- [ ] pasture
- [ ] crop or grain
- [ ] wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- [ ] water plants: water lily, eelgrass, milfoil, other
- [ ] other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

Two trees will be removed at the bridge terminus at the CKC, to improve grade stability and facilitate installation of the pedestrian bridge landing.

c. List threatened or endangered species known to be on or near the site.

None observed

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Maintenance and preservation of existing landscaping (to the greatest extent possible) throughout the construction phase; relocation of existing parking lot plantings as required to accommodate stair/elevator tower construction.

See restoration ehancement mitigation planting plan.

5. ANIMALS

a. Check or circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

- [X] Birds: hawk, heron, eagle, songbirds, other:
- [ ] Mammals: deer, bear, elk, beaver, other:
- [ ] Fish: bass, salmon, trout, herring, shellfish, other:

LT 10/19/17

b. List any threatened or endangered species known to be on or near the site.

No known threatened or endangered animal species have been observed on or near the site.

c. Is the site part of a migration route? If so, explain.

No.

d. Proposed measures to preserve or enhance wildlife, if any:

None anticipated.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy need? Describe whether it will be used for heating, manufacturing, etc.

The project will require electrical service to operate the elevator as well as internal lighting.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project is not anticipated to impact the use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of the proposal? List other proposed measures to reduce or control energy impacts, if any:

Lighting fixtures proposed for the structure will utilize LED lamping.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No.

(1) Describe special emergency services that might be required.

This project should not require additional or extraordinary emergency services.

(2) Proposed measures to reduce or control environmental health hazards, if any.

None anticipated.

LT
10/19/17

b. Noise

(1) What types of noise exist in the area which may affect your project (for example, traffic, equipment, operation, other)?

Construction noise will be limited to the City's Noise Ord. BCC 9.18

Noise from existing vehicles utilizing the transit center facility should not have any significant impact on this project.

(2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example, traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise levels will increase during the construction phase of the project, mostly occurring during the working hours of 7 a.m. to 7 p.m., Monday through Friday. Upon completion, any increase in noise levels from the operation of the project should be negligable.

(3) Proposed measures to reduce or control noise impacts, if any:

Construction operations will be monitored for compliance with City of Bellevue noise ordinances and guidelines established for this project.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The site is currently used as a transit center.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

The project is directly adjacent to a four-level parking garage and adjoining surface parking lot.

d. Will any structures be demolished? If so, what?

No structures will be demolished.

e. What is the current zoning classification of the site?

City of Bellevue zoning designation for the portion of the site where this proejct is proposed is Residential R-15.

f. What is the current comprehensive plan designation of the site?

City of Bellevue comprehensive plan designation for the project site is: MF-M, Multi Family - Medium Density.

g. If applicable, what is the current shoreline master program designation of the site?

N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Other than the steep slope (critical areas classification) under the bridge no other sensitive areas are known.

I. Approximately how many people would reside or work in the completed project?

N/A

j. Approximately how many people would the completed project displace?

None.

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k. Proposed measures to avoid or reduce displacement impacts, if any:

None anticipated.

i. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

As this project is an amenity to the current use of the site (providing enhanced access from the CKC to the South Kirkland Park & Ride transit center), the project will function under all applicable codes and ordinances.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be created by this proposal.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated by this proposal.

c. Proposed measures to reduce or control housing impacts, if any:

None anticipated.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Tallest height of structure is 59'-10". Principal material is painted structural steel & aluminum glazed curtainwall.

b. What views in the immediate vicinity would be altered or obstructed?

The project location proposed does not result in view alteration or blockage.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None anticipated.

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10/19/17

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The lighting for the project will be located to enhance pedestrian visibility and security during the evening hours.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Project siting w/ regards to the existing garage, slope & trees, light or glare from the project will not be an issue.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light or glare impacts, if any:

Design and installation of the lighting fixtures so as not to produce any detrimental lighting issues with adjacent properties or uses.

Project subject to Light and Glare requirements of LUC 20.50.522

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The Cross Kirkland Corridor will be connected to the South Kirkland Park & Ride as a result of this project. Additionally, Watershed Park is located roughly 650 feet northwest of the site, in the City of Kirkland.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.

None.

c. Proposed measures to reduce or control impacts, if any:

None.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Site served by 108th Ave NE (east) & NE 38th Place (south) which connect to Northup Wy & SR 520 (to south.)

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The current site is the South Kirkland Park & Ride Transit Center, a part of the the King County Transit system.

c. How many parking spaces would be completed project have? How many would the project eliminate?

The project will eliminate 3 spaces from the existing Transit Center parking capacity (835 - 3 = 850 stalls.)

LT
10/19/17

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

No vehicular trips are anticipated as a result of this project.

g. Proposed measures to reduce or control transportation impacts, if any:

None anticipated.

15. Public Services

a. Would the project result in an increased need for the public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The project should not generate the need for additional public services beyond current levels provided to the site.

b. Proposed measures to reduce or control direct impacts on public services, if any:

None anticipated.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The project include installation of electrical service in the CKC, to the north of the Park & Ride site. This will come from 108th Ave. NE right-of-way to a point of connection at the upper terminus of the pedestrian bridge.

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature..... Date Submitted..2/5/18.....

LT
10/19/17

Altmann Oliver Associates, LLC
AOA
PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509
Environmental Planning & Landscape Architecture

September 15, 2017

AOA-4529

Jennifer Palmer, AIA
KPG, Inc.
3131 Elliot Avenue, Suite 400
Seattle, WA 98121

SUBJECT: **South Kirkland Park and Ride CKC Connection**
Bellevue, WA (City File 16-136371-LO)
Steep Slope and Buffer Modification and Mitigation
Vegetation Management Plan (Revised)

Dear Jen:

We have updated our vegetation management plan to incorporate the comments presented in the June 22, and September 7, 2017 additional information request letters from the City of Bellevue.

1.0 PURPOSE

The purpose of this report is to assess the impacts and mitigation requirements associated with modifications to vegetation on a critical area steep slope and buffer as part of the proposed ADA-compliant bridge that will connect the Cross Kirkland Corridor trail to the South Kirkland Park and Ride facility. This report and the associated plan set (**Drawings L1.1 through L4.1**) have been prepared to meet the requirements of the City of Bellevue's Land Use Code for critical area mitigation and restoration plans (LUC 20.25H.210).

It is our understanding that GeoDesign, Inc. has prepared a geotechnical report that describes how the proposed project is consistent with the City of Bellevue's Land Use Code for steep slopes. Development within a critical area steep slope and its buffer are subject to the applicable performance standards outlined in LUC 20.25H.055.C.2 and LUC 20.25H.125 (see geotech report for performance standards).

LUC 20.25H.125.J requires that areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan. We have prepared this mitigation and restoration plan due to the required vegetation removal and shading on the slope as part of the proposed bridge.

2.0 EXISTING CONDITIONS

Several site visits were conducted in the vicinity of the proposed bridge during the spring and summer of 2014 and the summer of 2017. The area between the CKC trail and the South Kirkland Park and Ride consists of a west-facing steep slope that inclines at approximately 50 to 60 percent.

Vegetation on the slope consisted primarily of a canopy of Douglas fir (*Pseudotsuga menziesii*) and madrone (*Arbutus menziesii*) trees with a relatively sparse cover of understory and groundcover species that included Himalayan blackberry (*Rubus armeniacus*), bracken fern (*Pteridium aquilinum*), and English ivy (*Hedera helix*). No wetlands or streams were identified on the site utilizing the methodology outlined in the May 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).*

3.0 CRITICAL AREA VEGETATION MODIFICATIONS

In addition to the required geotechnical performance standards, LUC 20.25H.125.B requires that "s*tructures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation."* The bridge project has been designed to minimize impacts to vegetation on the slope and only three significant trees will require removal. Following construction, the proposed project will result in the loss of 138 s.f. of vegetated area on the steep slope and 1,051 s.f. of vegetated area within the slope buffer.

Temporary impacts as part of re-grading include 157 s.f. of steep slope and 549 s.f. of steep slope buffer. All temporarily impacted areas will be fully restored. In addition, the project would also result in 544 s.f. of shading impact to vegetation beneath the bridge.

4.0 CRITICAL AREA VEGETATON RESTORATION/MITIGATION

As part of the proposed project, all of the temporarily impacted areas would be restored. Those vegetated areas within the trail easement that are currently maintained would be restored with native grasses while any areas containing blackberry and other shrubs would be restored with native plantings.

Mitigation for the loss of vegetation on the slope and its buffer will include the enhancement of 3,940 s.f. of steep slope and 1,795 s.f. of steep slope buffer.

Enhancement will consist of removing the English ivy, Himalayan blackberry, and any other invasive species and re-planting with a variety of native shrubs and groundcover species. Re-planting the slope would increase the plant species and structural diversity and should increase the area's habitat value.

Mitigation for the removal of the three significant trees will occur by planting 18 western red cedar (*Thuja plicata*) trees. A 6:1 replacement to loss ratio is provided rather than the typical 3:1 replacement to loss ratio since 2-gallon trees will be used rather than 2.5-inch caliper trees. This smaller plant material is necessary due to the difficulty of planting large trees on the steep slope.

4.1 Goal, Objectives, and Performance Standards for Restoration/Mitigation Areas

The primary goal of the restoration/mitigation plan is to increase the habitat functions of the slope and its buffer. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the restoration/mitigation area.
Performance Standard: There will be 100% survival of all planted species throughout the planted area at the end of the first year of planting. For Years 2-5, success will be based on an 85% survival rate or similar number of recolonized native plants.

Objective B: Limit the amount of invasive and exotic species within the restoration/mitigation area.
Performance Standard: After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels below 10% total cover in the designated planting areas. Invasive species include, but are not limited to, Himalayan and evergreen blackberry, Japanese knotweed, and English ivy.

4.2 Construction Management

Prior to commencement of any work in the mitigation area, the clearing limits will be staked and all existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor.

A consultant will supervise plan implementation during construction to ensure that objectives and specifications of the mitigation plan are met. Any necessary significant modifications to the design that occur as a result of unforeseen site conditions will be jointly approved by the City of Bellevue and the consultant prior to their implementation.

4.3 Monitoring Methodology

The monitoring program will be conducted for a period of five years, with annual reports submitted to the City. Vegetation monitoring will include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weeds.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the mitigation area. Review of the photos over time will provide a visual representation of success of the mitigation plan.

4.4 Maintenance Plan

Maintenance will be conducted on a routine, year round basis. Additional maintenance needs will be identified and addressed following periodic maintenance reviews. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the consultant or the owner.

4.5 Weed Control

Routine removal and control of non-native and other invasive plants within the designated planting areas shall be performed by manual means. Undesirable and weedy exotic plant species shall be maintained at levels below 10% total cover within all mitigation areas during the monitoring period.

4.6 General Maintenance Items

Routine maintenance of planted vegetation shall be performed. Measures include resetting plants to proper grades and upright positions. Tall grasses and other competitive weeds shall be weeded at the base of plants to prevent engulfment. Weed control should be performed by hand removal.

4.7 Contingency Plan

All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the mitigation plan. Plant material shall meet the same specifications as originally-installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the consultant or City of Bellevue.

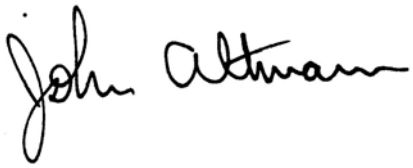
4.8 As-Built Plan

Following completion of construction activities, an as-built plan for the mitigation area will be provided to the City of Bellevue. The plan will identify and describe any changes in relation to the original approved plan.

If you have any questions regarding the proposed vegetation management plan, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC



John Altmann
Ecologist

CALL 2 DAYS
BEFORE YOU DIG
1-800-424-5555

CITY OF KIRKLAND

CNM0084
CKC PARK AND RIDE CONNECTION
3677 108TH AVE NE

APRIL 2017 | JOB NO. 17-XX-PW | PERMIT SUBMITTAL

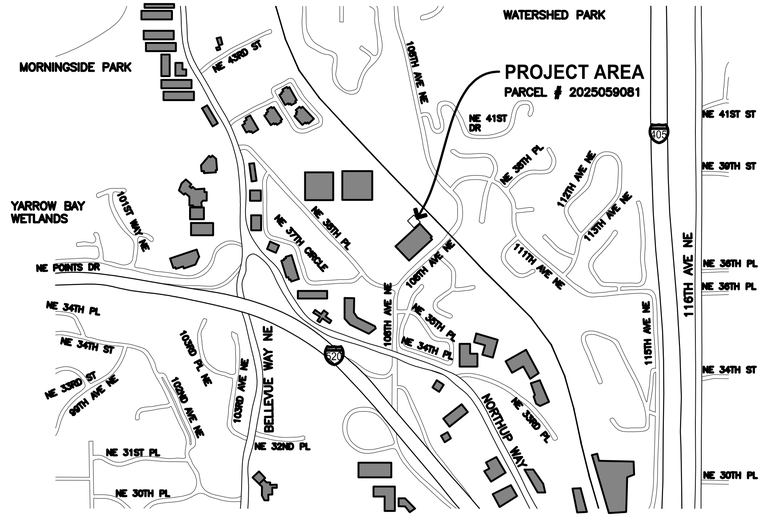
CITY OFFICIALS

AMY WALEN	MAYOR
JAY ARNOLD	DEPUTY MAYOR
PENNY SWEET	COUNCIL MEMBER
SHELLEY KLOBA	COUNCIL MEMBER
TOBY NIXON	COUNCIL MEMBER
DAVE ASHER	COUNCIL MEMBER
DOREEN MARCHIONE	COUNCIL MEMBER
KURT TRIPLETT	CITY MANAGER
KATHY BROWN	PUBLIC WORKS DIRECTOR
DAVE SNIDER, PE	CAPITAL PROJECTS MANAGER

CONTACT PERSONNEL

NAME	AGENCY	PHONE
PROJECT MANAGER	ANNEKE DAVIS	425-587-3828
COK MAINTENANCE	KIRKLAND STREETS, STORM & WASTE WATER, & WATER DEPTS	425-587-3900
COK POLICE DEPT	KIRKLAND POLICE DEPT	425-587-3400
COK FIRE DEPT	KIRKLAND FIRE DEPT	425-587-3650
	EMERGENCY	911
	ONE CALL	1-800-424-5555

VICINITY MAP



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Consulting Structural & Civil Engineering
1809 7TH AVENUE, SUITE 1100 SEATTLE, WA 98101
(206) 625-3777 Fax (206) 625-1851

OLIVER

GEODESIGN INC

SÄZÄN GROUP

ERCI

SHEET INDEX

SEE G001 FOR DRAWING INDEX

SHEET INDEX

		PRE-APPLICATION CONFERENCE	30% SUBMITTAL	60% SUBMITTAL	90% SUBMITTAL	PERMIT APPLICATION	BID DOCUMENTS
GENERAL							
G000	COVER SHEET	•	•	•	•	•	•
G001	NOTES, LEGENDS & ABBREVIATIONS			•	•	•	•
G002	CODE DATA SHEET			•	•	•	•
G003	OVERALL SITE PLAN AND CONSTRUCTION STAGING PLAN	•	•	•	•	•	•
DEMOLITION							
D001	DEMOLITION SITE PLAN			•	•	•	•
CIVIL							
C100	TESC SITE PLAN				•	•	•
C101	TESC SITE PLAN & NOTES				•	•	•
C102	PARTIAL SITE PLAN W/UTILITIES	•	•	•	•	•	•
C103	PARTIAL SITE PLAN W/UTILITIES	•	•	•	•	•	•
C104	GRADING PROFILES			•	•	•	•
C105	GRADING PROFILES			•	•	•	•
C106	DETAILS			•	•	•	•
ARCHITECTURAL							
A101	PLAN – LEVEL 1			•	•	•	•
A102	PLAN – LEVEL 2			•	•	•	•
A103	ENLARGED FLOOR PLANS			•	•	•	•
A104	REFLECTED CEILING PLANS			•	•	•	•
A105	ROOF PLAN				•	•	•
A200	NORTH & WEST EXTERIOR ELEVATIONS	•	•	•	•	•	•
A201	SOUTH & EAST EXTERIOR ELEVATIONS	•	•	•	•	•	•
A300	OVERALL BUILDING SECTION @ BRIDGE	•	•	•	•	•	•
A301	OVERALL BUILDING SECTIONS @ STAIRS AND ELEVATOR			•	•	•	•
A400	ROOF, RAILING, STAIR AND GLAZING DETAILS			•	•	•	•
STRUCTURAL							
S1	GENERAL NOTES, ABBREVIATIONS AND LEGEND				•	•	•
S2	SPECIAL INSTRUCTIONS AND TESTING				•	•	•
S3	SPECIAL INSTRUCTIONS AND TESTING				•	•	•
S4	SPECIAL INSTRUCTIONS AND TESTING				•	•	•
S5	TYPICAL STEEL SECTIONS AND DETAILS				•	•	•
S6	TYPICAL STEEL SECTIONS AND DETAILS				•	•	•
S100	DRILLED SHAFT PLAN, SECTIONS AND DETAILS			•	•	•	•
S101	FOUNDATION, LEVEL 1 & INTERMEDIATE LEVEL PLANS			•	•	•	•
S102	LEVEL 2 PLAN			•	•	•	•
S103	ROOF PLAN			•	•	•	•
S200	PEDESTRIAN BRIDGE ELEVATION, CROSS SECTIONS & DETAILS			•	•	•	•
S201	STAIR & ELEVATOR TOWER ELEVATIONS			•	•	•	•
S202	STAIR & ELEVATOR TOWER ELEVATIONS			•	•	•	•
S300	CONCRETE FOUNDATION SECTIONS & DETAILS			•	•	•	•
S301	TYPICAL CONCRETE SECTIONS & DETAILS			•	•	•	•
S302	STEEL SECTIONS & DETAILS				•	•	•
S303	STEEL SECTIONS & DETAILS				•	•	•
S304	STEEL SECTIONS & DETAILS					•	•
S305	STEEL SECTIONS & DETAILS					•	•
MECHANICAL							
M100	SYMBOLS & ABBREVIATIONS			•	•	•	•
M101	SCHEDULES				•	•	•
M102	PLAN – LEVEL 1				•	•	•
M103	PLAN – LEVEL 2				•	•	•
M104	ROOF PLAN				•	•	•
M400	DETAILS				•	•	•

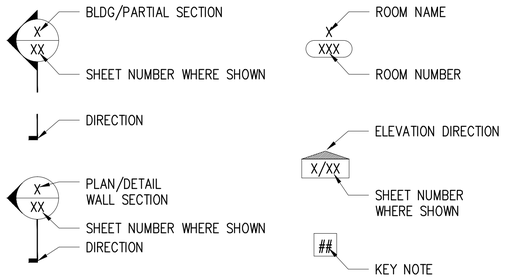
SHEET INDEX CONTINUED

		PRE-APPLICATION CONFERENCE	30% SUBMITTAL	60% SUBMITTAL	90% SUBMITTAL	PERMIT APPLICATION	BID DOCUMENTS
PLUMBING							
P100	PLAN – FOUNDATION				•	•	•
P101	PLAN – LEVEL 1				•	•	•
P102	PLAN – LEVEL 2				•	•	•
ELECTRICAL							
E100	SYMBOLS & ABBREVIATIONS			•	•	•	•
E101	SITE PLAN			•	•	•	•
E102	LEVEL 1 & TYPICAL FLOOR PLAN			•	•	•	•
E103	LEVEL 2 PLAN				•	•	•
E110	ONE LINE DIAGRAM & DETAILS				•	•	•

ARCHITECTURAL ABBREVIATIONS

ABV	ABOVE	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MFR	MANUFACTURER
BLDG	BUILDING	MH	MANHOLE
BTM	BOTTOM	MIN	MINIMUM
CB	CATCH BASIN	MTL	METAL
CIP	CAST-IN-PLACE	NIC	NOT IN CONTRACT
CKC	CROSS KIRKLAND CORRIDOR	OC	ON CENTER
CONC	CONCRETE	PROP	PROPERTY
CONN	CONNECTION	PSF	POUNDS PER SQUARE FOOT
CONT	CONTINUOUS	SF	SQUARE FEET/FOOT
DEPT	DEPTH, DEPARTMENT	SHT	SHEET
DIA	DIAMETER	STL	STEEL
DS	DOWNSPOUT	TEMP	TEMPORARY
DTL	DETAIL	TO	TOP OF
DW	DOWN	TOC	TOP OF CONCRETE
ELEV	ELEVATION	TOS	TOP OF STEEL
EX, EXIST	EXISTING	TYP	TYPICAL
FO	FACE OF	W/	WITH
GALV	GALVANIZED	WAC	WASHINGTON ADMINISTRATIVE COD
HR	HOUR		

ARCHITECTURAL SYMBOLS LEGEND



ARCHITECTURAL GENERAL NOTES

1. DRAWINGS ARE IN PART DIAGRAMMATIC AND DO NOT NECESSARILY SHOW COMPLETE DETAILS OF CONSTRUCTION, WORK, OR MATERIALS, PERFORMANCE OR INSTALLATION.
2. DRAWINGS DO NOT NECESSARILY SHOW HOW CONSTRUCTION DETAILS, OTHER ITEMS OR WORK, AND EQUIPMENT MAY AFFECT A PARTICULAR INSTALLATION.
3. FEATURES NOT FULLY SHOWN ON PLANS OR DETAILS ARE TO BE PROVIDED AS INDICATED FOR SIMILAR CONDITIONS.
4. CONSTRUCTION METHODS AND MATERIALS NOT EXPLICITLY INDICATED OR IMPLIED ARE INCIDENTAL TO THE WORK AND ARE INTENDED TO BE CONTRACTOR DESIGNED.
5. THE ARCHITECT SHALL BE NOTIFIED OF ANY VARIATION FROM THE DIMENSIONS AND/OR CONDITIONS SHOWN ON THESE DOCUMENTS. ANY SUCH VARIATIONS SHALL BE APPROVED BY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK, OR THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR THE FULL IMPACT TO THE PROJECT FROM PROCEEDING WITHOUT OBTAINING SUCH RESOLUTION AS WELL AS ALL COSTS TO RECTIFY THE SAME.
6. GRIDLINE OCCURS AT THE FACE OF GIRT, CONCRETE FOUNDATION WALL AND CENTERLINES OF COLUMNS.
7. ALL DIMENSIONS TO WALLS ARE FROM FACE OF METAL STUDS, METAL BUILDING GIRT OR CONCRETE FOUNDATION WALL UNLESS NOTED OTHERWISE.
8. WRITTEN DIMENSIONS ON THE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS.
9. VERIFY DIMENSIONS, ROUGH OPENING SIZES SHOWN FOR DOORS, WINDOWS AND OTHER PENETRATIONS AGAINST REQUIREMENTS OF SPECIFIED PRODUCTS, CONDITIONS, ELEVATIONS, ETC. PERTAINING TO WORK BEFORE PROCEEDING.
10. PROVIDE ALL SUB-FRAMING/BLOCKING/BACKING AS REQUIRED TO RECEIVE WORK BY OTHERS.
11. PROVIDE GALVANIC ISOLATION BETWEEN DISSIMILAR METALS.
12. ALL OPENINGS SHALL BE CAULKED, SEALED, OR WEATHER STRIPPED.
13. NOT ALL ELEMENTS ARE SHOWN ON ARCHITECTURAL DRAWINGS, SEE STRUCTURAL, MECHANICAL, PLUMBING OR ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
14. ALL CLEAR DIMENSIONS ARE TO BE EXACTLY WITHIN 1/8" FULL HEIGHT AND WIDTH OF WALLS. CONTRACTOR SHALL NOT ADJUST ANY DIMENSIONS MARKED "CLEAR" OR "CLR" WITHOUT WRITTEN INSTRUCTIONS FROM THE OWNER.
15. CONTRACTOR SHALL ADHERE TO ALL CODES, RULES, AND REGULATIONS GOVERNING CONSTRUCTION BUILDING ACCESS AND THE USE OF FACILITIES AS SET BY THE AUTHORITY HAVING JURISDICTION.

SUMMARY OF WORK

1. RELOCATION OF EXISTING BIKE LOCKER AND SITE STORM DRAIN IMPROVEMENTS (CATCH BASINS AND RELATED PIPING) AS REQUIRED IN THE AREA OF WORK AND AS DETAILED HEREIN.
2. EXCAVATION AND CONSTRUCTION OF ELEVATOR AND STAIR TOWER IN AREA INDICATED HEREIN.
3. GRADING AND CONSTRUCTION OF PEDESTRIAN BRIDGE LANDING IN THE RIGHT-OF-WAY FOR THE CROSS KIRKLAND CORRIDOR TRAIL.
4. INSTALLATION OF WATER AND POWER UTILITIES TO SERVE THE TOWER STRUCTURE WITHIN THE RIGHT-OF-WAY FOR THE CROSS KIRKLAND CORRIDOR TRAIL TO THE POINT OF CONNECTION AT 108TH AVE NE.
5. INSTALLATION OF CONNECTING PEDESTRIAN BRIDGE FROM THE CROSS KIRKLAND CORRIDOR TRAIL TO THE ELEVATOR AND STAIR TOWER.
6. STAGING OF WORK REQUIRED FOR THIS PROJECT WILL BE PHASED SO AS NOT TO ADVERSELY IMPACT THE USE AND ACCESSIBILITY OF THE PARK & RIDE VEHICULAR PARKING.

PROJECT INFORMATION

PROJECT ADDRESS
SOUTH KIRKLAND PARK AND RIDE
10800 NE 38TH STREET
BELLEVUE, WA 98004

ACCESSOR PARCEL NUMBERS
PARCEL 1: KC TAX PARCEL: 2025059230
PARCEL 2: KC TAX PARCEL: 2025059081

AREA CALCULATIONS (CITY OF BELLEVUE ONLY)
LOT AREA: 3.86 ACRES BUILDING FOOTPRINT: 470 SF

PROJECT DESCRIPTION:
THIS PROJECT IS FOR THE CONSTRUCTION OF A PEDESTRIAN ELEVATOR AND STAIR TOWER WITH CONNECTING BRIDGE TO FACILITATE ACCESS FROM THE CROSS KIRKLAND CORRIDOR TO THE SOUTH KIRKLAND PARK & RIDE AND METRO TRANSIT CENTER.

THE PROJECT IS DESIGNED TO FIT AN EXISTING PEDESTRIAN AREA AND WILL RESULT IN THE MODIFICATION TO OR ELIMINATION OF (3) EXISTING PARKING STALLS IN THE PARK & RIDE COMPLEX.

THE PROJECT IS DESIGNED AS A GATEWAY FROM THE KIRKLAND PARK AND RIDE TO THE CKC TRAIL ABOVE.

PROJECT GENERAL NOTES

1. MARK LAMPARD AT KING COUNTY MUST BE CONTACTED AT 206-477-5414 AND MARK.LAMPARD@KINGCOUNTY.GOV FIVE (5) WORKING DAYS IN ADVANCE OF THE PRE-CONSTRUCTION CONSTRUCTION CONFERENCE FOR THIS PROJECT.
2. MARK LAMPARD AT KING COUNTY MUST BE CONTACTED AT 206-477-5414 THREE (3) WORKING DAYS IN ADVANCE OF CONSTRUCTION ACTIVITY WITHIN 50 FEET OF THE KING COUNTY PIPELINE.
3. NO DEBRIS SHALL BE ALLOWED TO ENTER THE KING COUNTY SEWER SYSTEM DURING CONSTRUCTION OF OR CONNECTION TO THE PROPOSED SADDLE/KC MH
4. CONTRACTOR SHALL SUBMIT TO KING COUNTY WASTEWATER TREATMENT DIVISION FOR REVIEW, THE PROPOSED EQUIPMENT, ACCESS AND STAGING AREAS TO BE USED FOR CONSTRUCTION OF THE PILINGS OR PLACEMENT OF THE BRIDGE ADJACENT TO THE CKC. THE EQUIPMENT LOADS MUST BE LIMITED OR MEASURES TAKEN TO NOT CAUSE STRUCTURAL DAMAGE TO THE 84-INCH DIAMETER KCWTD SEWER PIPE DURING CONSTRUCTION OF THE PILINGS OR BRIDGE,

LEGAL DESCRIPTION

(BASED ON DAVID EVANS AND ASSOCIATES SURVEY, DATED FEBRUARY 22, 2012.)

PARCEL 2 –

THAT PORTION OF LOT D OF CITY OF KIRKLAND SHORT PLAT NUMBER 78-8-1, RECORDED UNDER KING COUNTY RECORDING NUMBER 7808281050, IN KING COUNTY, WASHINGTON, LYING WITHIN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 20, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M.

BASIS OF BEARING:

WASHINGTON COORDINATE SYSTEM, NORTH ZONE, NAD 83/07.

VERTICAL DATUM:

NAVD-99

G001

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

G001_LGND_NOTE.dwg
FILENAME
G BARBER JUNE 2014
DESIGNED BY DATE
J PALMER JUNE 2014
DRAWN BY DATE
DJ DEAN SEPT 2017
CHECKED BY DATE

9813 REGISTERED ARCHITECT DENNIS W. SELMAN JR. STATE OF WASHINGTON

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2502 Jefferson Ave Tacoma, WA 98402 (253) 627-0720 www.kpg.com

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

GENERAL NOTES, LEGEND & ABBREVIATIONS

KPG PROJECT No. 13152 SHT 2 OF 55

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CONSTRUCTION PHASING

ALL WORK OCCURS ON PARCELS WITHIN THE CITY LIMITS OF BELLEVUE.

PHASE 1

SCOPE INCLUDES:

1. INSTALL ALL UTILITY CONNECTIONS AND REQUIRED CROSSINGS THAT IMPACT THE 108TH AVE NE RIGHT OF WAY;
2. DRILL PILINGS, FORM AND POUR GRADE BEAM SUPPORT AT CKC PEDESTRIAN BRIDGE LANDING LOCATION;
3. REMOVE EXISTING ON SITE BIKE LOCKER AND MOVE TO NEW LOCATION ACROSS DRIVEWAY;
4. RELOCATE EXISTING UNDERGROUND UTILITIES (CATCH BASIN, STORM DRAIN LINES, ETC.) FROM AREA OF ELEVATOR PIT EXCAVATION;
5. REMOVE EXISTING ROCKERY IN CONSTRUCTION AREA AND INSTALL SHORING IN AREA TO RECEIVE NEW CONCRETE RETAINING WALL;
6. REMOVE EXISTING SIDEWALK AND LANDSCAPE PLANTINGS IN CONSTRUCTION AREA – MAINTAIN PROTECTED, ADA–COMPLIANT ACCESS TO MAN–DOOR EXIT FROM PARKING GARAGE BUILDING DURING ENTIRE CONSTRUCTION PROCESS; AND
7. EXCAVATE, FORM AND POUR PILINGS, FOUNDATION AND ELEVATOR PIT PER DRAWINGS.

PHASE 2

SCOPE INCLUDES:

1. TRENCH AND INSTALL UNDERGROUND UTILITIES FOR THE PROJECT FROM THE CONNECTION POINTS AT THE 108TH AVE NE LOCATION TO THE BRIDGE LANDING LOCATION;
2. ERECT STRUCTURAL STEEL FRAMEWORK FOR ELEVATOR AND STAIR TOWER;
3. PLACE AND CONNECT MANUFACTURED STEEL PEDESTRIAN BRIDGE;
4. INSTALL ROOF STRUCTURE AND MEMBRANE TO MAKE WEATHERTIGHT; AND
5. RUN M/E/P ON STRUCTURE TO FINAL POINTS OF CONNECTION.

PHASE 3

SCOPE INCLUDES:

1. POUR BRIDGE DECKS, LANDINGS AND STAIR TREADS;
2. INSTALL CURTAINWALL AT ELEVATOR TOWER;
3. COMPLETE WALL FRAMING AT TOWER AND UTILITY ROOM;
4. INSTALL HOUSE ELECTRICAL PANEL AND ENERGIZE;
5. POUR BACK BOTTOM FLOOR SIDEWALK AND PEDESTRIAN CONNECTION TO EXISTING CROSSWALK TO TRANSIT CENTER;
6. INSTALL ELEVATOR;
7. INSTALL LIGHTING FIXTURES;
8. INSTALL DECORATIVE MESH SKIN AND FINAL FINISHES; AND
9. FINAL PAINTING AND TRIM OUT.

CONSTRUCTION PERMITS

CITY OF BELLEVUE PERMITS:

LAND USE:	DESIGN REVIEW (LD PERMIT)
	CRITICAL AREAS LAND USE PERMIT (LO PERMIT)
CLEARING & GRADING:	C & G W/SEPA (GJ PERMIT)
BUILDING:	MEDIUM BUILDING PROJECT (BM PERMIT)
	ELECTRICAL
	MECHANICAL
	SHORING
UTILITIES:	UTILITY EXTENSIONS (UE PERMIT)
	ELECTRICAL
FIRE	FIRE ALARMS
TRANSPORTATION:	ROW – SHORT TERM
	ROW – SURFACE DISTURBANCE

DEFERRED PERMIT SUBMITTALS:

- STEEL STAIRS AND GUARDRAILS
- SECURITY AND DECORATIVE METAL SCREENS
- ROOF CANOPIES
- PRE–ENGINEERED AND PRE–FABRICATED STEEL PEDESTRIAN BRIDGE
- ELEVATOR
- GLASS CURTAIN WALL SYSTEM
- PEDESTRIAN PROTECTION DURING CONSTRUCTION

1

THE ARCHITECT–OF–RECORD FOR THIS PROJECT MUST FIRST REVIEW THE DEFERRED DOCUMENTS AND DETAILS PRIOR TO SUBMITTING DEFERRED DOCUMENTS AND DETAILS TO THE CITY. IF THE ARCHITECT IS SATISFIED WITH THE DEFERRED DOCUMENTS AND DETAILS, HE/SHE SHALL THEN FORWARD THEM TO THE BUILDING DEPARTMENT WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

SEPERATE PERMITS REQUIRED:

- MECHANICAL
- ELECTRICAL

PROVIDE CALCULATIONS, SHOP DRAWINGS, AND DETAILS FOR PERMIT PRIOR TO CONSTRUCTION.

APPLICABLE CODES & STANDARDS

2012 INTERNATIONAL BUILDING CODE (IBC) WAC 51–50
2010 ADA AND 2009 ICC A117.1
2014 WASHINGTON STATE ENERGY CODE (WSEC) WAC 51–11
2012 INTERNATIONAL MECHANICAL CODE (IMC) WAC 51–52
2014 UNIFORM PLUMBING CODE (UPC) WAC 51–56 & 51–57
2012 INTERNATIONAL FIRE CODE (IFC) WAC 51–54
2014 NFPA 130
2014 NATIONAL ELECTRICAL CODE (NEC) (NFPA 70)
2012 WASHINGTON STATE AMENDMENTS
2014 CITY OF BELLEVUE LAND USE CODE
CITY OF BELLEVUE CONSTRUCTION CODES, TITLE 23

CODE NOTES

BUILDING ADDRESS	3677 108TH AVE NE
PROJECT ENGINEER; PHONE NUMBER	CITY OF KIRKLAND – FRANK REINART, PE; (425) 587–3826
ARCHITECT; PHONE NUMBER	KPG – GARY BARBER, AIA; (206) 267–1061
CIVIL ENGINEER; PHONE NUMBER	KPG – JOHN SAMUELSON, PE; (206) 267–1051
PROPERTY OWNER:	KING COUNTY – METRO TRANSIT DIVISION 201 S JACKSON ST SEATTLE, WA 98104–3856
CONTACT:	RAND JULIANO – COUNTY REAL ESTATE TRANSACTION MANAGER
PHONE:	(206) 477–5933
EMAIL:	RAND.JULIANO@KINGCOUNTY.GOV

JURISDICTION AND CODE

JURISDICTION	CITY OF BELLEVUE
APPLICABLE BUILDING CODE	INTERNATIONAL BUILDING CODE (IBC), 2012 EDITION WITH WAC 51–50 WASHINGTON STATE AMENDMENTS
WASHINGTON STATE ENERGY CODE COMPLIANCE	N/A (BUILDING UNHEATED)

BUILDING TYPE AND FIRE PROTECTION

BUILDING TYPE	II–B
FIRE SPRINKLERS	NOT REQUIRED
FIRE ALARM	PROVIDED
MINIMUM DISTANCE TO PROPERTY LINE	
A. ALLOWABLE	40 FEET
B. PROPOSED	BUILDING: 78 FEET, BRIDGE: 18 FEET
FIRE RATING OF EXTERIOR WALLS	NON–RATED

BUILDING HEIGHT AND AREA (TABLE 503)

BUILDING HEIGHT	
A. ALLOWABLE	55 FEET + 20 FEET PER 503.4 = 75 FEET
B. PROPOSED	60 FEET
BUILDING STORIES	
A. ALLOWABLE	2 STORIES
B. PROPOSED	2 STORIES
BUILDING AREA	
A. ALLOWABLE	8,500 SF
B. PROPOSED	BUILDING: 783 SF, BRIDGE: 534 SF

1

OCCUPANCY SUMMARY

GROSS FLOOR AREA	BUILDING: 783 SF, BRIDGE: 534 SF
OCCUPANCY GROUP	U
OCCUPANT LOAD FACTOR	200 GROSS SF/OCCUPANT (BASED ON IBC TABLE 1004.1.2)
OCCUPANT LOAD	7

DESIGN FACTORS

DESIGN WIND SPEED	110 MPH
ROOF SNOW LOAD	25 PSF
SEISMIC CATEGORY	D
DESIGN RAINFALL	1.4 INCH/HR
FROST LINE DEPTH	18 INCHES

2014 WSEC SUMMARY

SECTION 1.3.1.1 EXEMPT BUILDINGS

EXEMPT FROM SECTION 502 AND 602 OF WSEC:
BUILDINGS AND STRUCTURES OR PORTIONS THEREOF WHOSE PEAK DESIGN RATE OF ENERGY USAGE IS LESS THAN 3.4 BTU/H PER SQ. FT. OR 1.0 WATT PER SQ. FT. OF FLOOR AREA FOR SPACE CONDITIONING REQUIREMENTS.

PRESCRIPTIVE ENVELOPE OPTIONS PER WSEC 1320

WALLS (ABOVE GRADE)	R–21
WALLS (BELOW GRADE)	R–21
S.O.G. FLOORS	R–10 W/ THERMAL BREAK
DOORS	U–0.600
VERT. WINDOWS	U–0.32

G002

NO.	DATE	BY	APPR.	REVISIONS
1	7/16	JP	GB	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER DATE
PROJECT MANAGER DATE
PROJECT ENGINEER DATE

G002_CODE NOTES.dwg
FILENAME
G BARBER JUNE 2014 DESIGNED BY DATE
J PALMER JUNE 2014 DRAWN BY DATE
DJ DEAN APRIL 2017 CHECKED BY DATE

9813 REGISTERED ARCHITECT DENNIS W. BELMA JR. STATE OF WASHINGTON

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PERMIT SUBMITTAL

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

GENERAL CODE DATA SHEET

KPG PROJECT No. 13152 SHT 3 OF 55

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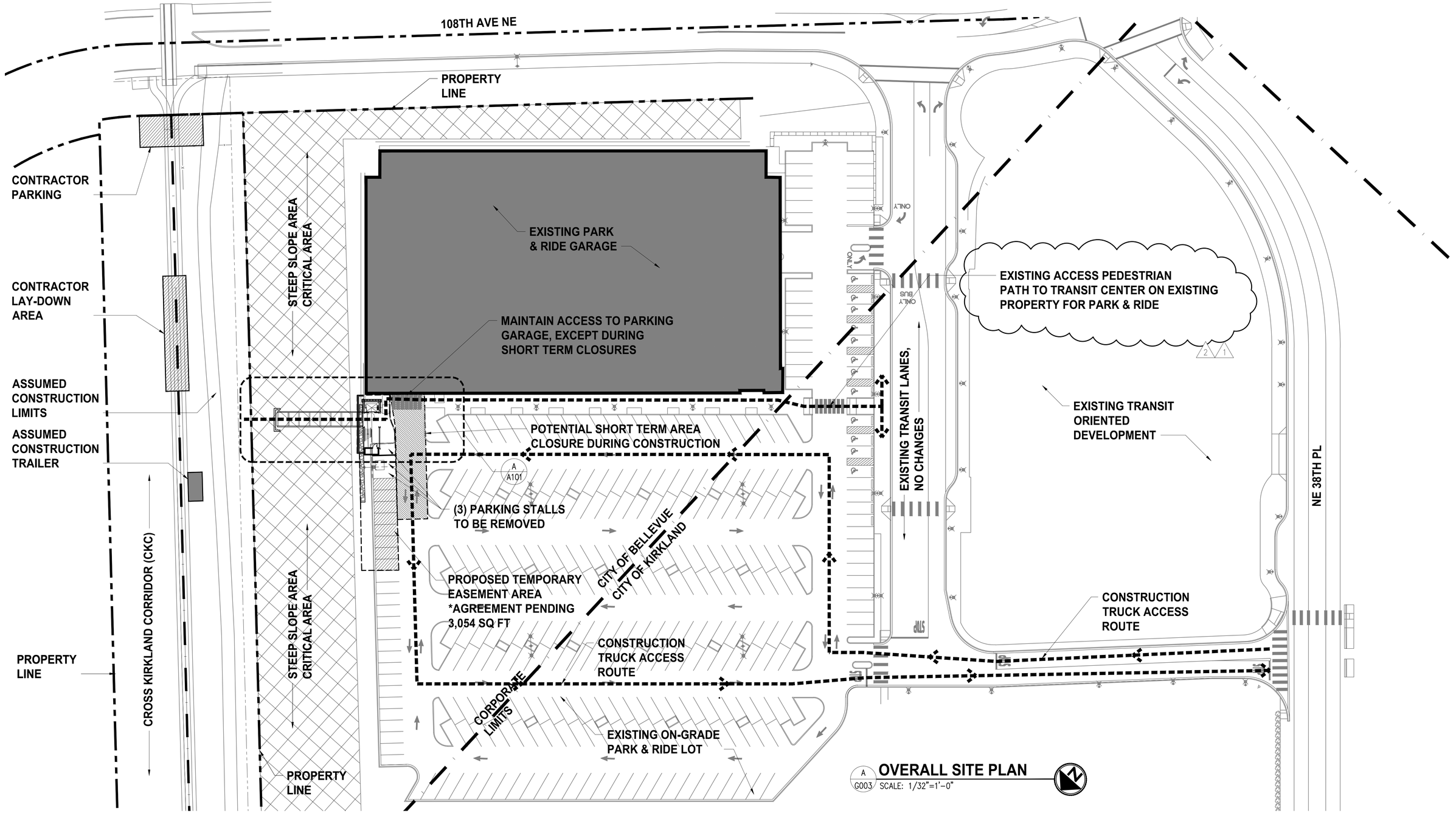
GENERAL CONSTRUCTION NOTES

1. NO CONSTRUCTION (DUMP TRUCKS AND DELIVERY TRUCKS) VEHICULAR ACCESS DURING PEAK HOURS: 6:00AM – 9:00AM AND 3:00PM – 6:00PM. CONSTRUCTION DURING PEAK HOURS SHALL BE CONFINED TO THE FENCED AREA.



A G003 **OVERALL SITE PLAN**
SCALE: 1/32"=1'–0"

G003

NO.	DATE	BY	APPR.	REVISIONS
1	7/16	JP	GB	BUILDING COMMENT RESPONSES
2	4/17	JP	DD	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

G004_OVERALL SITE PLAN.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
CHECKED BY	DATE

9813 REGISTERED ARCHITECT DENNIS W. SEMA, JR. STATE OF WASHINGTON

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

GENERAL
OVERALL SITE PLAN & CONSTRUCTION STAGING PLAN

KPG PROJECT No. 13152 | SHT 4 OF 55

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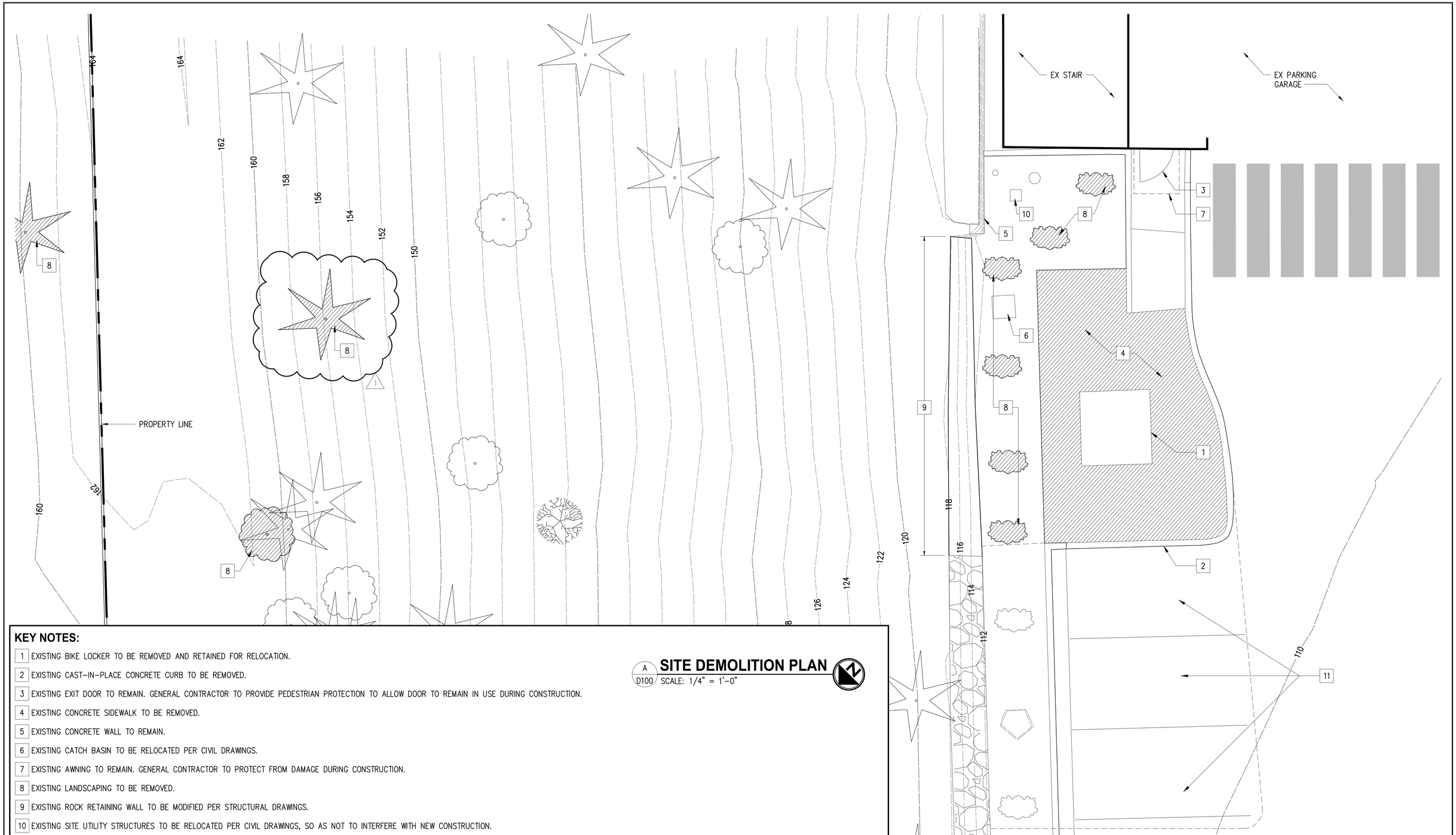

KEY NOTES:

1. EXISTING BIKE LOCKER TO BE REMOVED AND RETAINED FOR RELOCATION.
2. EXISTING CAST-IN-PLACE CONCRETE CURB TO BE REMOVED.
3. EXISTING EXIT DOOR TO REMAIN. GENERAL CONTRACTOR TO PROVIDE PEDESTRIAN PROTECTION TO ALLOW DOOR TO REMAIN IN USE DURING CONSTRUCTION.
4. EXISTING CONCRETE SIDEWALK TO BE REMOVED.
5. EXISTING CONCRETE WALL TO REMAIN.
6. EXISTING CATCH BASIN TO BE RELOCATED PER CIVIL DRAWINGS.
7. EXISTING AWNING TO REMAIN. GENERAL CONTRACTOR TO PROTECT FROM DAMAGE DURING CONSTRUCTION.
8. EXISTING LANDSCAPING TO BE REMOVED.
9. EXISTING ROCK RETAINING WALL TO BE MODIFIED PER STRUCTURAL DRAWINGS.
10. EXISTING SITE UTILITY STRUCTURES TO BE RELOCATED PER CIVIL DRAWINGS, SO AS NOT TO INTERFERE WITH NEW CONSTRUCTION.
11. EXISTING PARKING STALLS TO BE ELIMINATED

A D100 **SITE DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"

D100

NO.	DATE	BY	APPR.	REVISIONS
1	9/18	JP	DD	LAND USE COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

D100_PLAN.dwg	
FILENAME	
G BARBER	JUNE 2014
DESIGNED BY	DATE
J PALMER	JUNE 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
CHECKED BY	DATE

9813 REGISTERED ARCHITECT DENNIS W. KELLY, JR. STATE OF WASHINGTON

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DEMOLITION SITE PLAN

KPG PROJECT No. 13152

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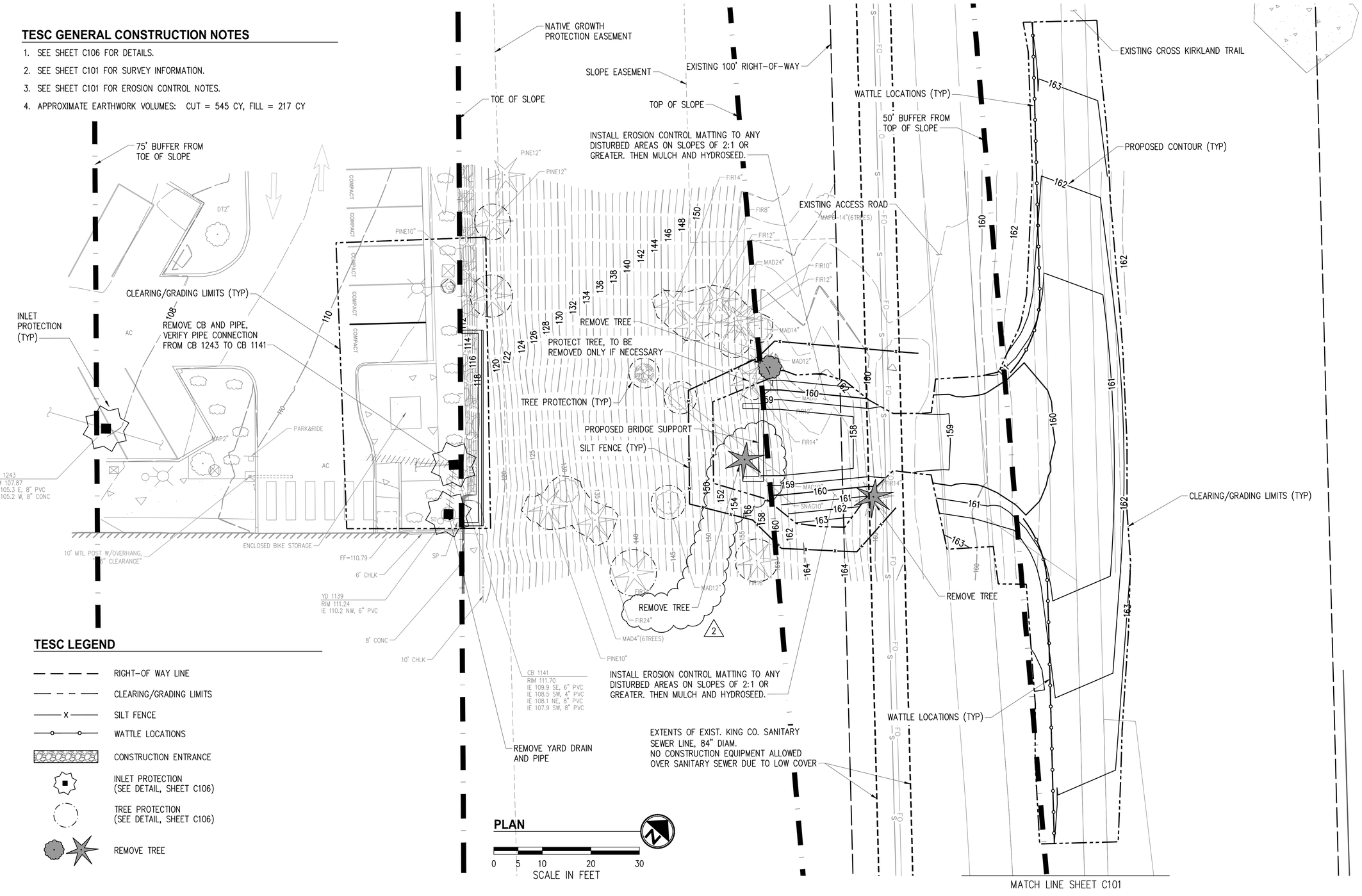
TESC GENERAL CONSTRUCTION NOTES

1. SEE SHEET C106 FOR DETAILS.
2. SEE SHEET C101 FOR SURVEY INFORMATION.
3. SEE SHEET C101 FOR EROSION CONTROL NOTES.
4. APPROXIMATE EARTHWORK VOLUMES: CUT = 545 CY, FILL = 217 CY



TESC LEGEND

- RIGHT-OF WAY LINE
- CLEARING/GRADING LIMITS
- SILT FENCE
- WATTLE LOCATIONS
- CONSTRUCTION ENTRANCE
- INLET PROTECTION (SEE DETAIL, SHEET C106)
- TREE PROTECTION (SEE DETAIL, SHEET C106)
- REMOVE TREE

PLAN

0 5 10 20 30
SCALE IN FEET

C100

NO.	DATE	BY	APPR.	REVISIONS
1	5/17	KPF	DD	LAND USE COMMENT RESPONSES
2	9/17	KPF	DD	LAND USE COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

C101_TESC PLAN.dwg	
FILENAME	
G BARBER	MARCH 2016
DESIGNED BY	DATE
K FRANADA	MARCH 2016
DRAWN BY	DATE
DJ DEAN	APRIL 2017
CHECKED BY	DATE

KARINA P. FRANADA, STATE OF WASHINGTON, 47649, REGISTERED PROFESSIONAL ENGINEER, 5-04-2016

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CIVIL
TESC ~~PLAN~~
TESC PLAN

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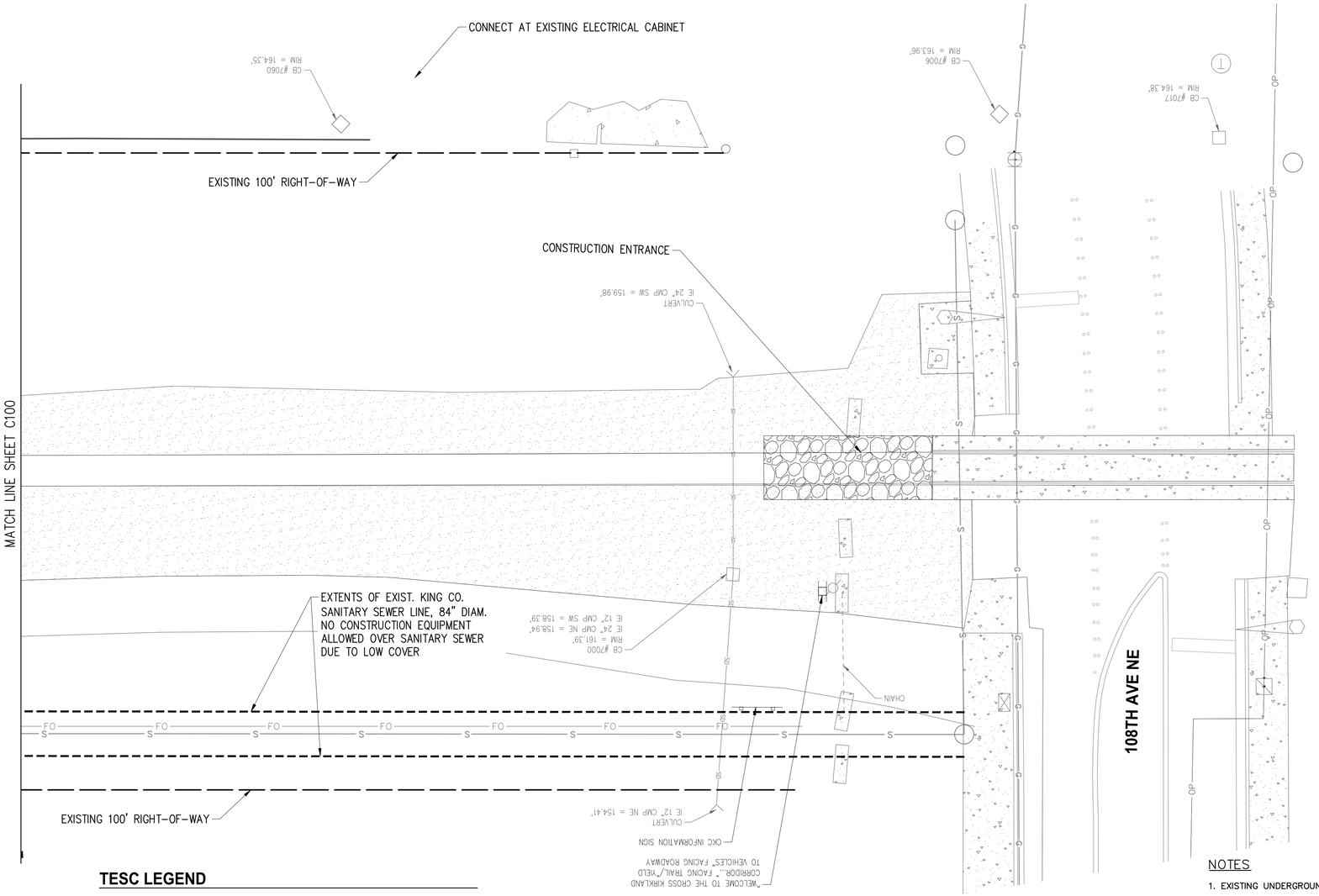

TESC LEGEND

- RIGHT-OF WAY LINE
- CLEARING/GRADING LIMITS
- SILT FENCE
- WATTLE LOCATIONS
- CONSTRUCTION ENTRANCE
- INLET PROTECTION (SEE DETAIL, SHEET C106)
- TREE PROTECTION (SEE DETAIL, SHEET C106)
- REMOVE TREE

PLAN

0 5 10 20 30

SCALE IN FEET

EROSION CONTROL NOTES

1. All clearing & grading construction must be in accordance with City of Bellevue (COB) Clearing & Grading Code, Clearing & Grading Development Standards, Land Use Code, Uniform Building Code, permit conditions, and all other applicable codes, ordinances, and standards. The design elements within these plans have been reviewed according to these requirements. Any variance from adopted erosion control standards is not allowed unless specifically approved by the City of Bellevue Development Services (DSD) prior to construction.

   It shall be the sole responsibility of the applicant and the professional civil engineer to correct any error, omission, or variation from the above requirements found in these plans. All corrections shall be at no additional cost or liability to the COB.

2. Approval of this erosion/sedimentation control (ESC) plan does not constitute an approval of permanent road or drainage design (e.g. size and location of roads, pipes, restrictors, channels, retention facilities, utilities, etc.).

3. A copy of the approved plans and drawings must be on-site during construction. The applicant is responsible for obtaining any other required or related permits prior to beginning construction.

4. The implementation of these ESC plans and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the applicant/contractor until all construction is completed and approved and vegetation/landscaping is established.

5. The ESC facilities shown on this plan must be constructed in conjunction with all clearing and grading activities, and in such a manner as to insure that sediment and sediment laden water do not enter the drainage system, roadways, or violate applicable water standards.

6. The ESC facilities shown on this plan are the minimum requirements for anticipated site conditions. During the construction period, these ESC facilities shall be upgraded as needed for unexpected storm events and to ensure that sediment and sediment-laden water do not leave the site.

7. All locations of existing utilities have been established by field survey or obtained from available records and should, therefore, be considered only approximate and not necessarily complete. It is the sole responsibility of the contractor to independently verify the accuracy of all utility locations and to discover and avoid any other utilities not shown which may be affected by the implementation of this plan.

8. The boundaries of the clearing limits shown on this plan shall be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing limits shall be permitted. The flagging shall be maintained by the applicant/contractor for the duration of construction.

9. Clearing shall be limited to the areas within the approved disturbance limits. Exposed soils must be covered at the end of each working day when working from October 1st through April 30th. From May 1st through September 30th, exposed soils must be covered at the end of each construction week and also at the threat of rain.

10. At no time shall more than one foot of sediment be allowed to accumulate within a trapped catch basin. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment laden water into the downstream system.

11. Stabilized construction entrances shall be installed at the beginning of construction and maintained for the duration of the project.

12. The contractor must maintain a sweeper on site during earthwork and immediately remove soil that has been tracked onto paved areas as result of construction.

13. The ESC facilities shall be inspected daily by the applicant/contractor and maintained as necessary to ensure their continued functioning.

14. Any excavated material removed from the construction site and deposited on property within the City limits must be done in compliance with a valid clearing & grading permit. Locations for the mobilization area and stockpiled material must be approved by the Clearing and Grading Inspector at least 24 hours in advance of any stockpiling.

15. The ESC facilities on inactive sites shall be inspected and maintained a minimum of once a month or within the 48 hours following a major storm event.

16. Final site grading must direct drainage away from all building structures at a minimum 5% slope, per the International Residential Code (IRC) R401.3.

NOTES

1. EXISTING UNDERGROUND UTILITY SYSTEMS HAVE NOT BEEN LOCATED.

   THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. ALL LOCATOR SERVICES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION OR SUBSURFACE EXPLORATION. CALL 1-800-424-5555.

2. FIELD SURVEY: KPG, JULY, 2014.

3. CONTOUR INTERVAL = 1 FOOT.

4. STORM CONNECTIONS HAVE BEEN DRAWN FROM CENTER OF LID TO CENTER OF LID.

HORIZONTAL DATUM

WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD 83/91.

VERTICAL DATUM

NAVD 88.

C101

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

C101_TESC PLAN.dwg	
FILENAME	
G BARBER	MARCH 2016
DESIGNED BY	DATE
K FRANADA	MARCH 2016
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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KARINA P. FRANADA — STATE OF WASHINGTON — 47549 — REGISTERED PROFESSIONAL ENGINEER — 5-04-2016

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TESC PLAN
& NOTES

KPG PROJECT No. 13152

SHT 7 OF 55

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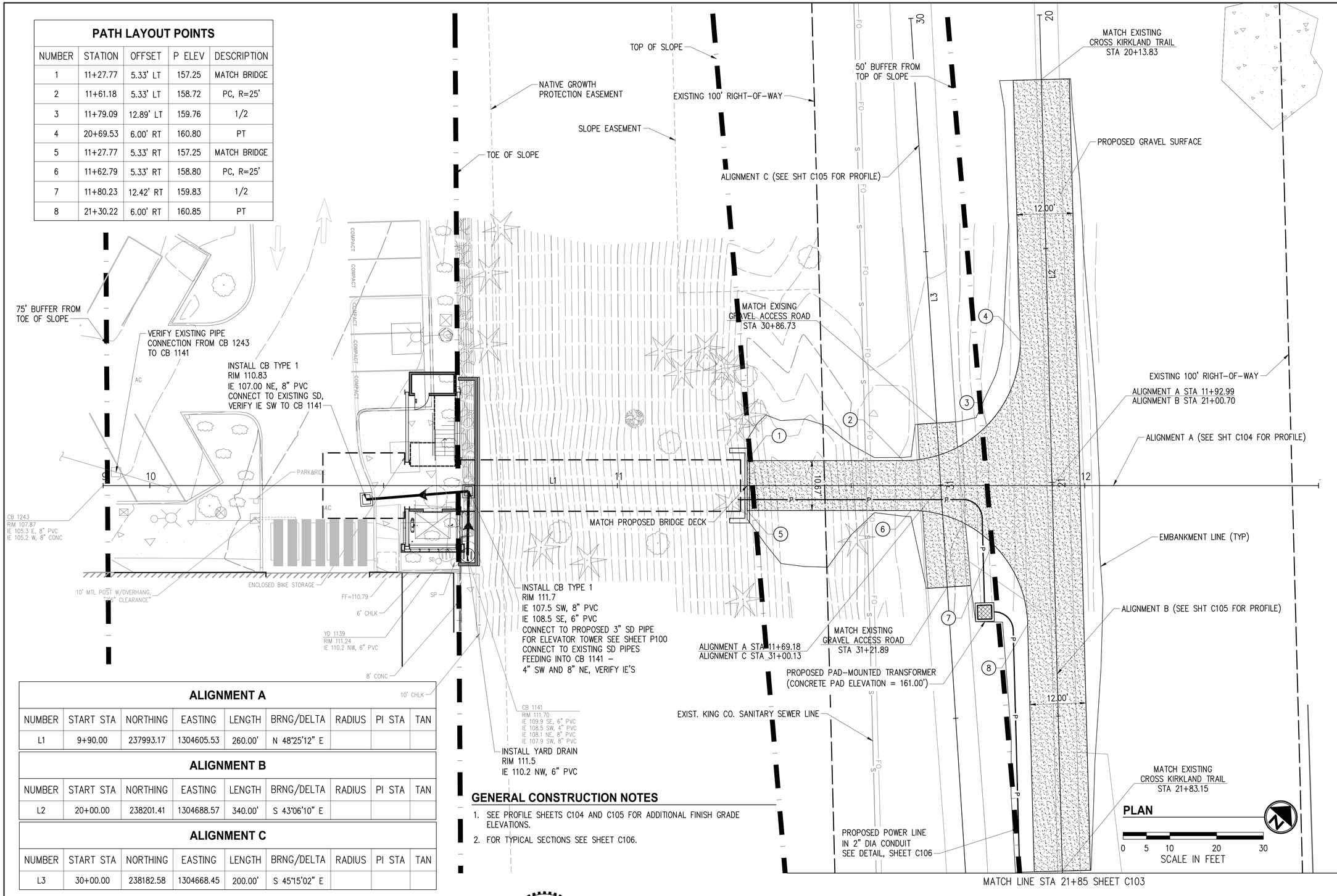
PATH LAYOUT POINTS

NUMBER	STATION	OFFSET	P ELEV	DESCRIPTION
1	11+27.77	5.33' LT	157.25	MATCH BRIDGE
2	11+61.18	5.33' LT	158.72	PC, R=25'
3	11+79.09	12.89' LT	159.76	1/2
4	20+69.53	6.00' RT	160.80	PT
5	11+27.77	5.33' RT	157.25	MATCH BRIDGE
6	11+62.79	5.33' RT	158.80	PC, R=25'
7	11+80.23	12.42' RT	159.83	1/2
8	21+30.22	6.00' RT	160.85	PT



ALIGNMENT A

NUMBER	START STA	NORTHING	EASTING	LENGTH	BRNG/DELTA	RADIUS	PI STA	TAN
L1	9+90.00	237993.17	1304605.53	260.00'	N 48°25'12" E			

ALIGNMENT B

NUMBER	START STA	NORTHING	EASTING	LENGTH	BRNG/DELTA	RADIUS	PI STA	TAN
L2	20+00.00	238201.41	1304688.57	340.00'	S 43°06'10" E			

ALIGNMENT C

NUMBER	START STA	NORTHING	EASTING	LENGTH	BRNG/DELTA	RADIUS	PI STA	TAN
L3	30+00.00	238182.58	1304668.45	200.00'	S 45°15'02" E			

GENERAL CONSTRUCTION NOTES

1. SEE PROFILE SHEETS C104 AND C105 FOR ADDITIONAL FINISH GRADE ELEVATIONS.
2. FOR TYPICAL SECTIONS SEE SHEET C106.

NO.	DATE	BY	APPR.	REVISIONS
1	5/17	KPF	DD	LAND USE COMMENT RESPONSES
2	9/17	KPF	DD	LAND USE COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

C100_SITE PLAN.dwg	
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G BARBER	MARCH 2016
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K FRANADA	MARCH 2016
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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C102

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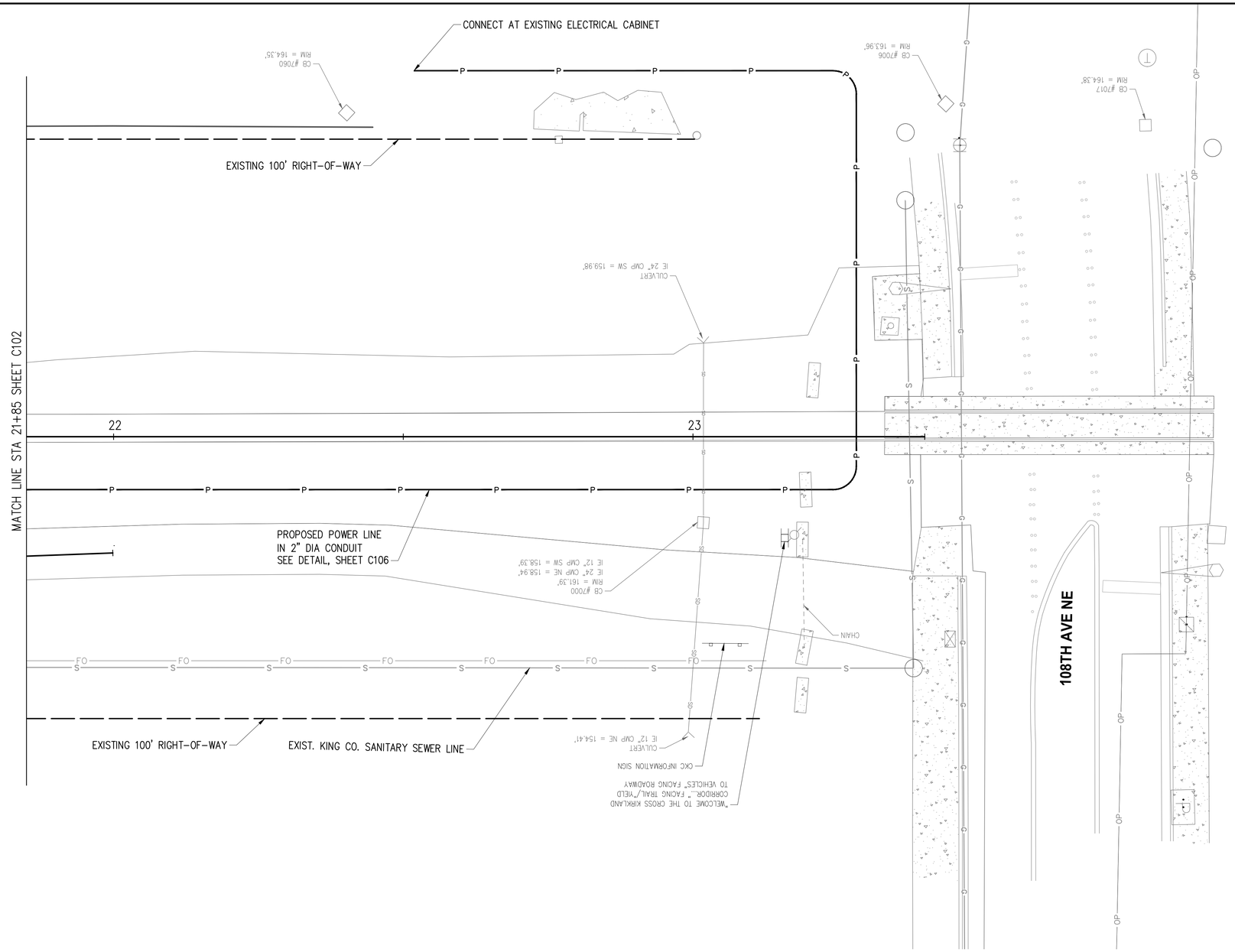
GENERAL CONSTRUCTION NOTES

1. SEE PROFILE SHEETS C104 AND C105 FOR ADDITIONAL FINISH GRADE ELEVATIONS.
2. FOR TYPICAL SECTIONS SEE SHEET C106.



PLAN

0 5 10 20 30

SCALE IN FEET

C103

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

C100_SITE PLAN.dwg	
FILENAME	
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DESIGNED BY	DATE
K FRANADA	MARCH 2016
DRAWN BY	DATE
DJ DEAN	APRIL 2017
CHECKED BY	DATE

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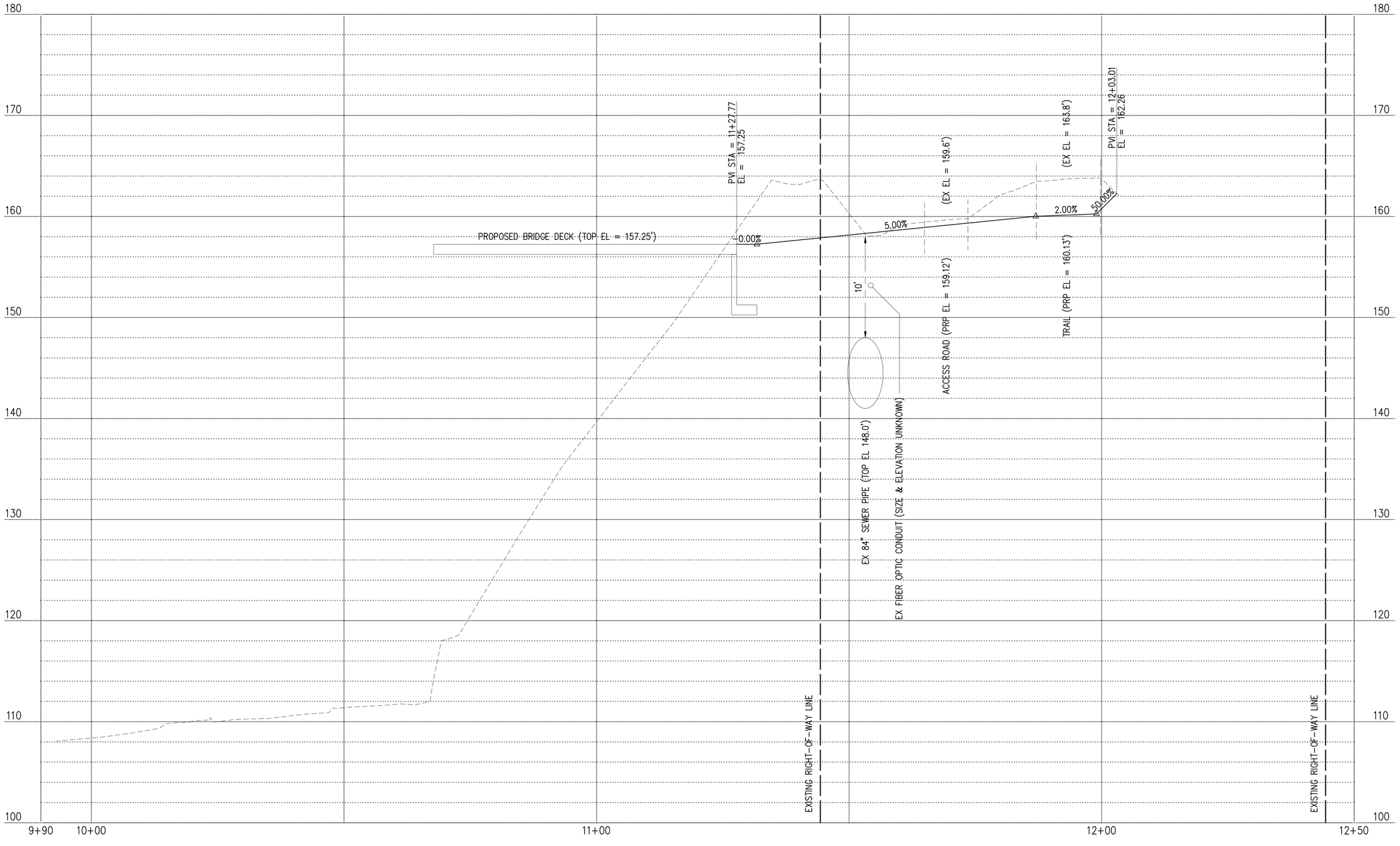
ALIGNMENT A
STA 9+90 TO STA 12+50



C104

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

C100_SITE PLAN.dwg	
FILENAME	
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DESIGNED BY	DATE
K FRANADA	MARCH 2016
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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CIVIL GRADING PROFILES

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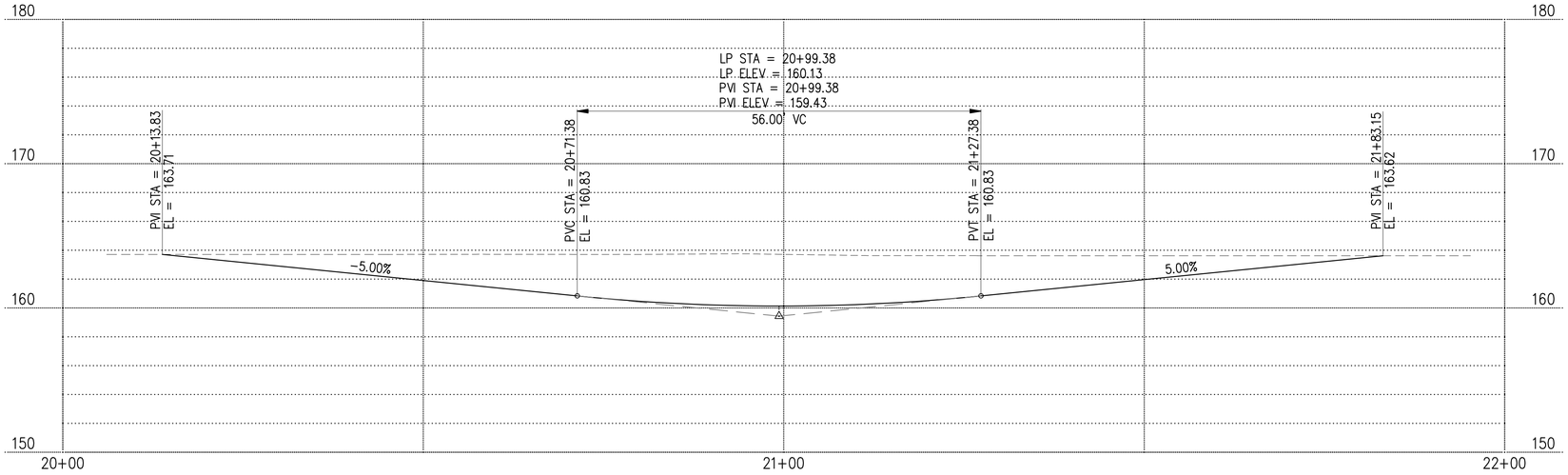
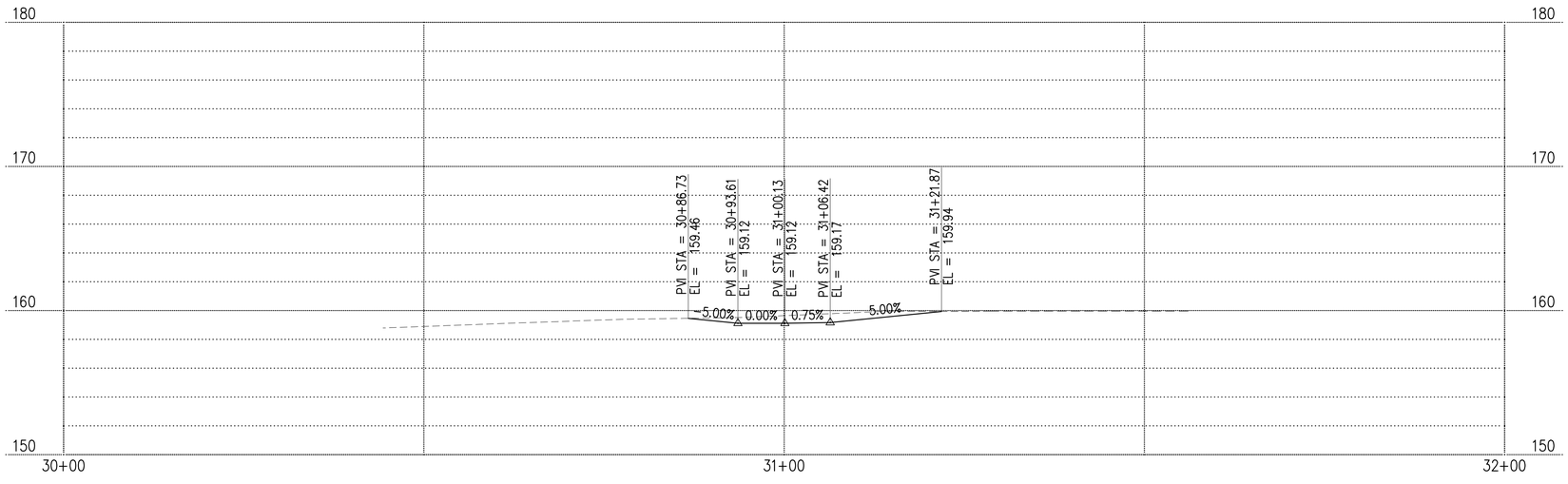
ALIGNMENT B
STA 20+00 TO STA 22+00



ALIGNMENT C
STA 30+00 TO STA 32+00



C105

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

C100_SITE PLAN.dwg	
FILENAME	
G BARBER	MARCH 2016
DESIGNED BY	DATE
K.FRANADA	MARCH 2016
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DJ DEAN	APRIL 2017
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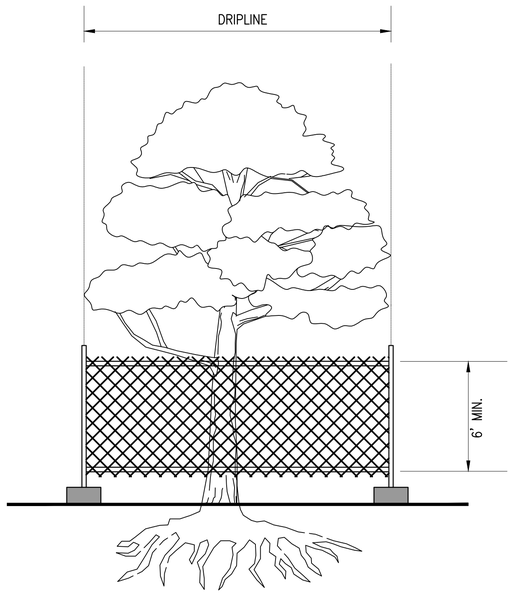


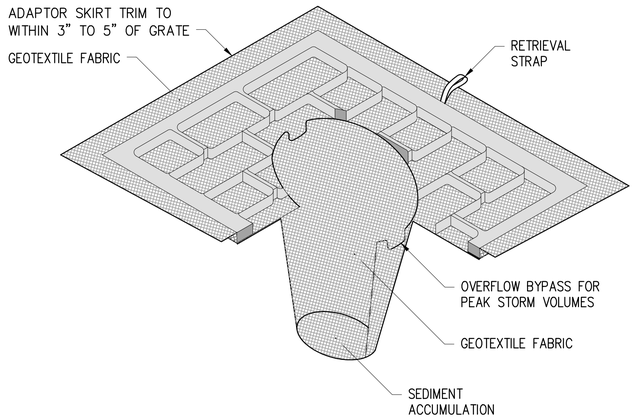
NOTES:

1. SIX FOOT HIGH TEMPORARY CHAIN LINK FENCE SHALL BE PLACED AT DRIPLINE OF TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCKS ONLY. AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER 1" IN DIAMETER DAMAGED DURING CONSTRUCTION; MAKE A CLEAN, STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. WORK WITH PROTECTION FENCE SHALL BE DONE MANUALLY. NO STOCKPILE OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMITS OF THE FENCING.
4. PORTIONS OF THE CHAIN LINK FENCE MAY BE MOVED 1/3 INTO THE DRIP LINE IF UNABLE TO PROTECT ENTIRE DRIP LINE AREA. THIS IS ONLY PERMITTED FOR PORTIONS OF THE DRIP LINE AREA THAT ARE IN CONFLICT WITH CONSTRUCTION ACTIVITIES BASED UPON A/E REPRESENTATIVE APPROVAL.
5. ALL TREES NOTED FOR REMOVAL SHALL BE APPROVED BY A/E REPRESENTATIVE, PRIOR TO START OF CONSTRUCTION ACTIVITIES.
6. ALL TREES TO REMAIN WITHIN CLEARING AND GRUBBING LIMITS, SHALL BE TAGGED FOR APPROVAL BY A/E REPRESENTATIVE, PRIOR TO START OF CONSTRUCTION ACTIVITIES.

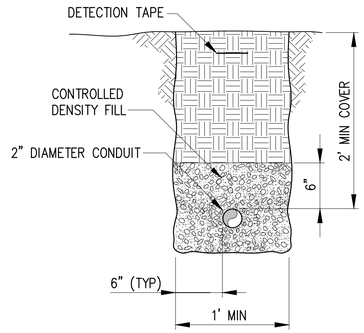
TREE PROTECTION FENCE
NTS

NOTES:

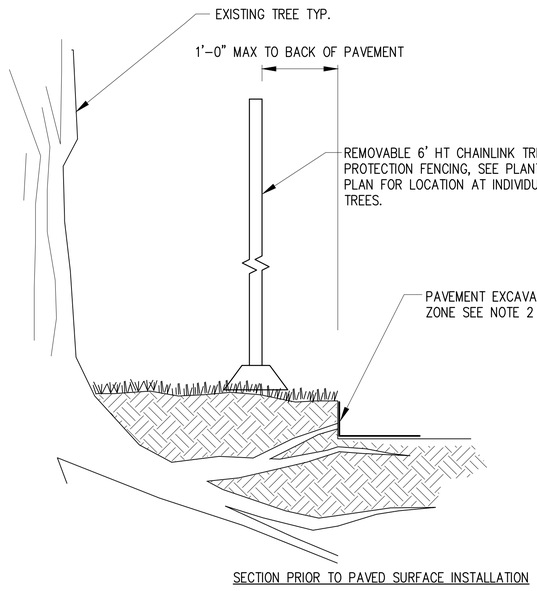
1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.
4. CATCH BASIN INSERTS SHALL BE USED FOR TEMPORARY STORMWATER TREATMENT DURING CONSTRUCTION. EXISTING CATCH BASINS SHALL BE EQUIPPED WITH INSERTS FOR SEDIMENT CONTROL DURING CONSTRUCTION AND RECONFIGURED IN NEWLY INSTALLED CATCH BASINS AS THE WORK PROGRESSES. EACH INSERT MAY BE REMOVED AND RE-INSTALLED ONLY ONCE, AND ONLY IF THE INSERT REMAINS INTACT AND IN FULL WORKING CONDITION, SUBJECT TO THE APPROVAL OF THE ENGINEER, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CATCH BASIN INSERTS REQUIRE AT LEAST WEEKLY INSPECTION, AND MAINTENANCE IF NEEDED.
5. CATCH BASIN INSERTS DO NOT MEET SPILL CONTAINMENT REQUIREMENTS AND CANNOT BE USED AS SUCH. METHODS OF POTENTIAL SPILL-CONTAINMENT SHALL BE ADDRESSED IN A TEMPORARY WATER POLLUTION/EROSION CONTROL PLAN.



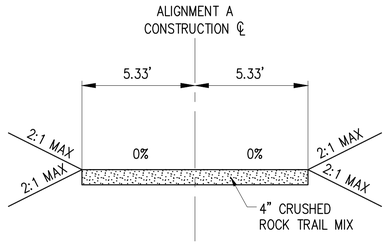
CATCH BASIN INLET PROTECTION INSERT
NTS



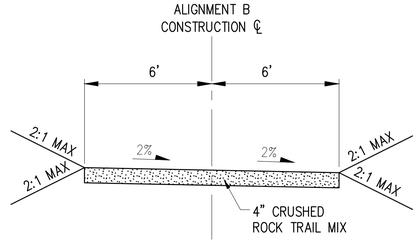
2" PVC CONDUIT TRENCH
NTS



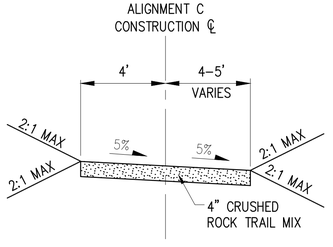
SECTION PRIOR TO PAVED SURFACE INSTALLATION



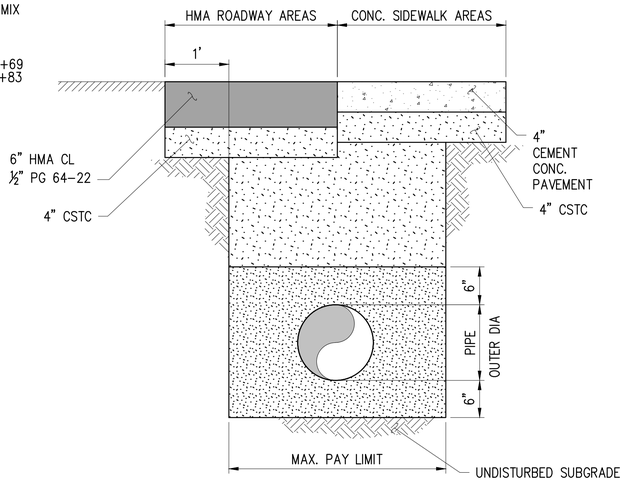
TYPICAL SECTION A
APPROX STA 11+28 TO STA 11+61
LOOKING NORTHEAST
NTS



TYPICAL SECTION B
APPROX STA 20+14 TO STA 20+69
APPROX STA 21+30 TO STA 21+83
LOOKING SOUTHEAST
NTS



TYPICAL SECTION C
APPROX STA 30+87 TO STA 30+90
APPROX STA 31+10 TO STA 31+21
LOOKING SOUTHEAST
NTS



- ID + 30" FOR 8" DIA & 12" DIA PIPE, WHERE ID IS NOMINAL PIPE DIA
- (1.5 * ID) + 18" FOR PIPE 18" DIA OR GREATER, WHERE ID IS NOMINAL PIPE DIA

STORM TRENCH DETAIL
NTS

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C106

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

C100_SITE PLAN.dwg	
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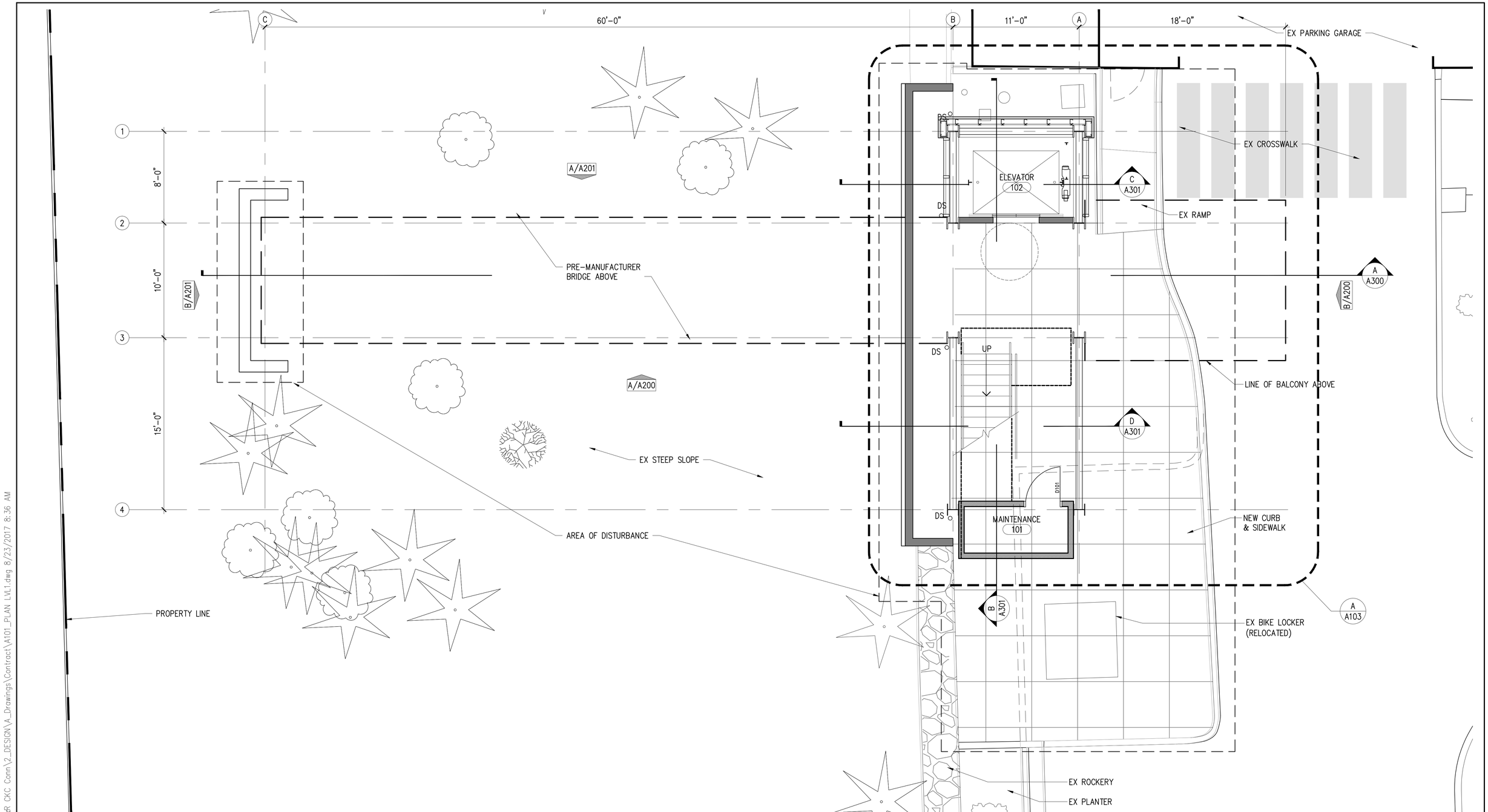
DETAILS

KPG PROJECT No. 13152 | SHT 12 OF 55



A **LEVEL 1 PLAN**
G003 SCALE: 1/4" = 1'-0"

K:\PROJECTS\KIRKLAND\13152 - P&R CKC Conn\2_DESIGN\A_Drawings\Contract\A101_PLAN LVL1.dwg 8/23/2017 8:36 AM

A101

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A101_PLAN LVL1.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
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DJ DEAN	APRIL 2017
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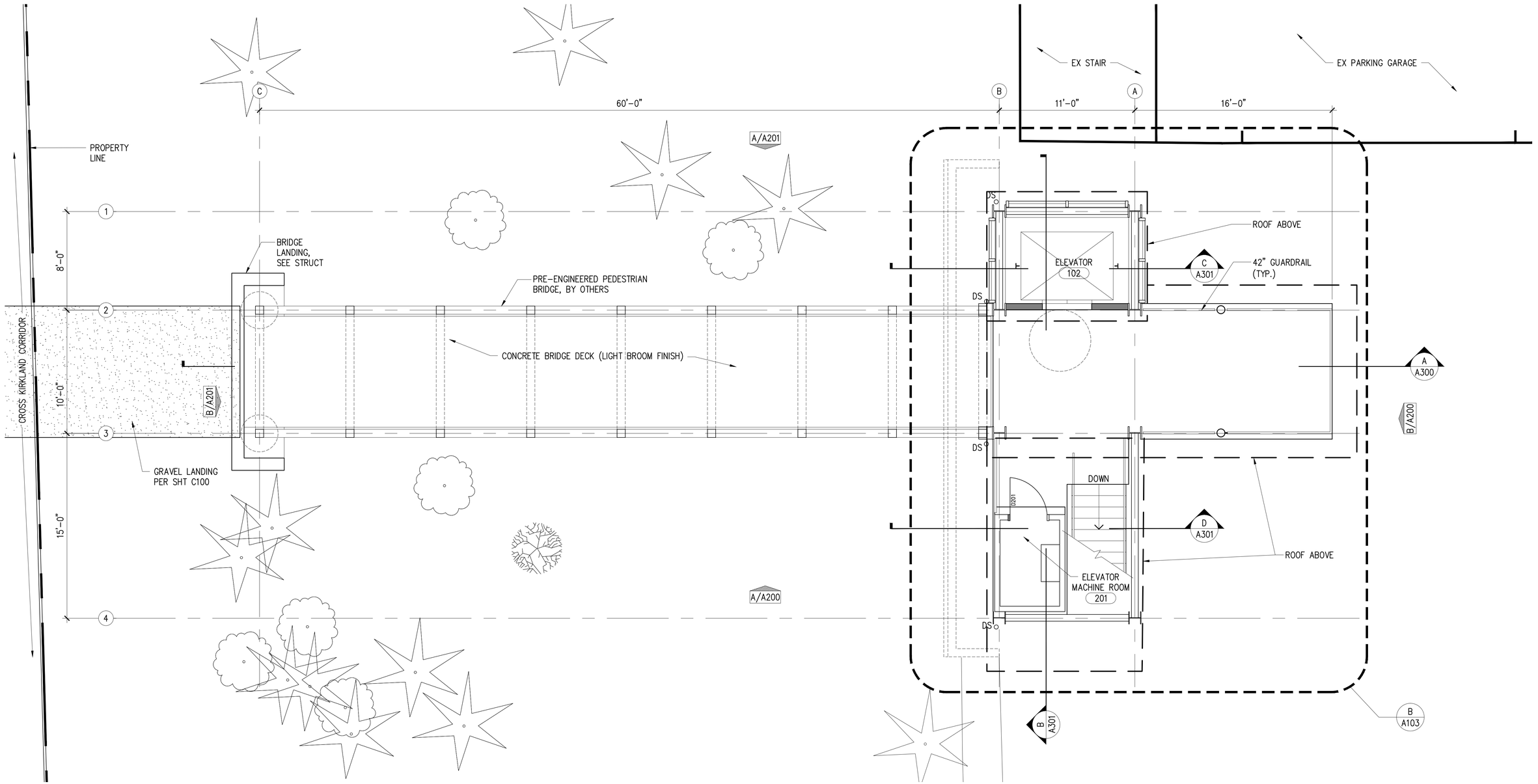
ARCHITECTURAL
PLAN
LEVEL 1

KPG PROJECT No. 13152

SHT 13 OF 55



A G003 **LEVEL 2 PLAN**
SCALE: 1/4" = 1'-0"

K:\PROJECTS\KIRKLAND\13152 - P&R CKC Conn\2_DESIGN\A_Drawings\Contract\A102_PLAN LVL2.dwg 8/23/2017 8:38 AM

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A102_PLAN LVL2.dwg	
FILENAME	
G BARBER	SEPT 2016
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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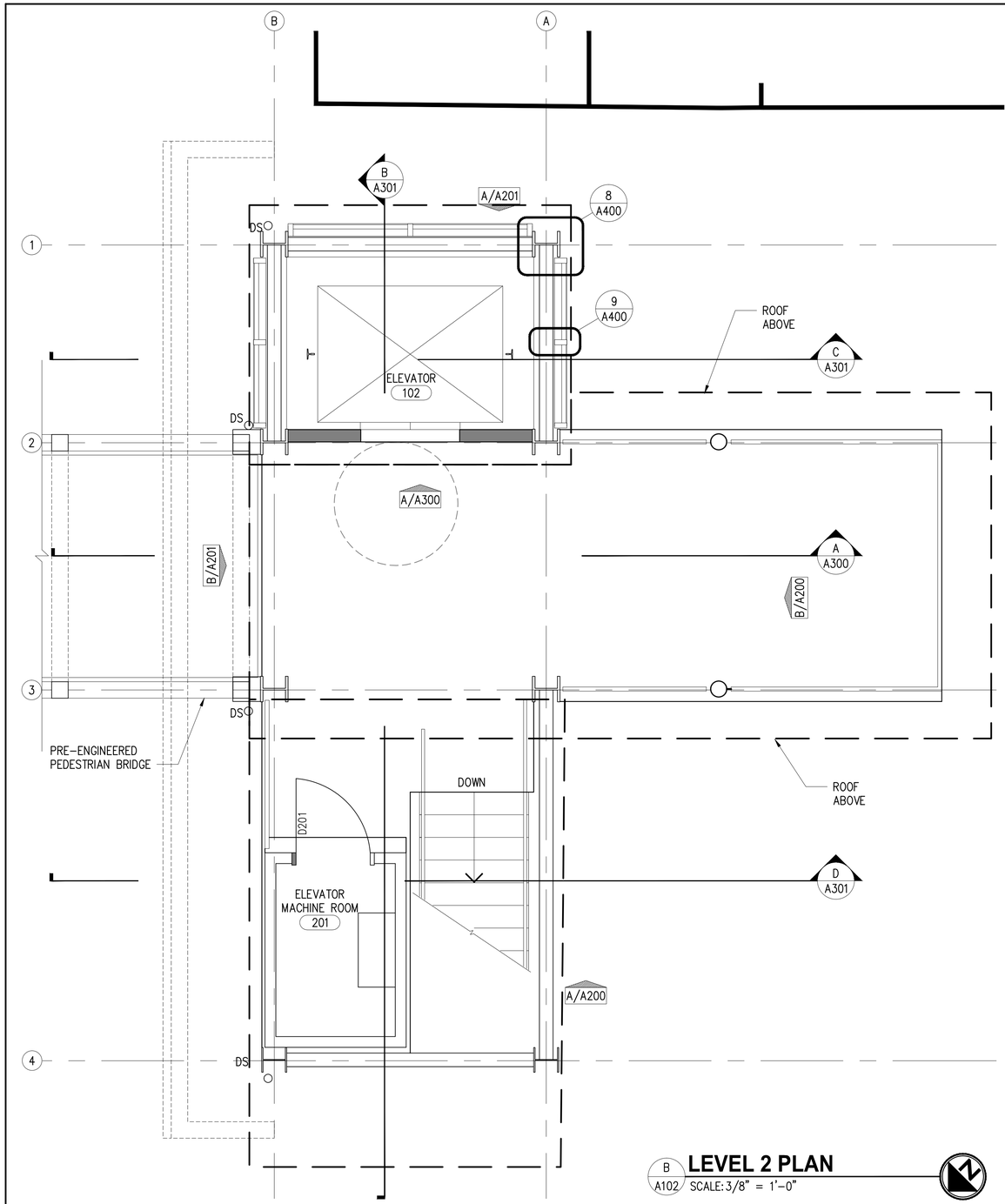
ARCHITECTURAL PLAN LEVEL 2

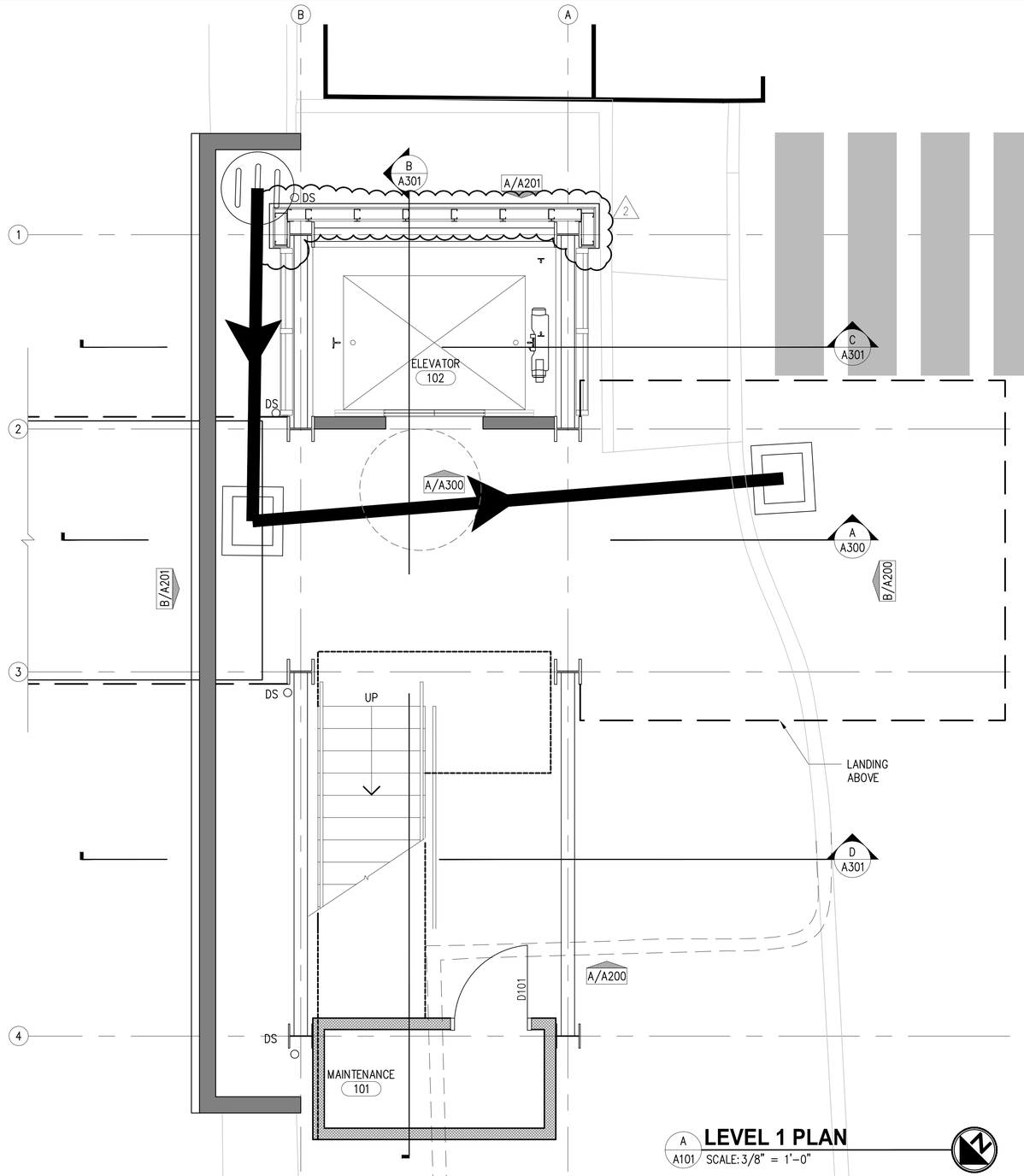
A102

KPG PROJECT No. 13152

SHT 14 OF 55



B A102 **LEVEL 2 PLAN**
SCALE: 3/8" = 1'-0"



A A101 **LEVEL 1 PLAN**
SCALE: 3/8" = 1'-0"

K:\PROJECTS\KIRKLAND\13152 - P&R CKC Conn\2_DESIGN\A_Drawings\Contract\A103_ENLG PLANS.dwg 8/23/2017 8:40 AM

NO.	DATE	BY	APPR.	REVISIONS
1	4/17	JP	DD	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A103_ENLG PLANS.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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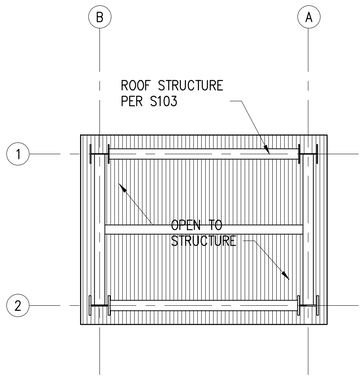
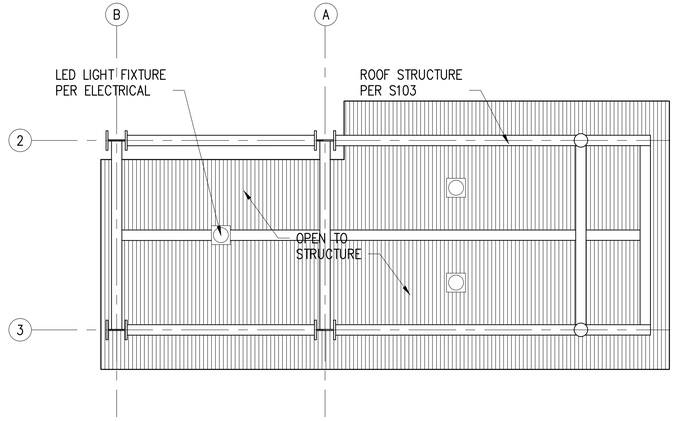
A103

ARCHITECTURAL ENLARGED FLOOR PLANS

KPG PROJECT No. 13152 | SHT 15 OF 55



E A104 **LEVEL 2.3 RCP**
SCALE: 1/4" = 1'-0"



D A104 **LEVEL 2.2 RCP**
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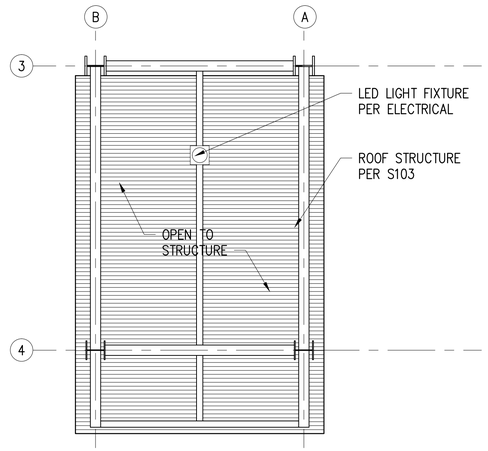

C A104 **LEVEL 2.1 RCP**
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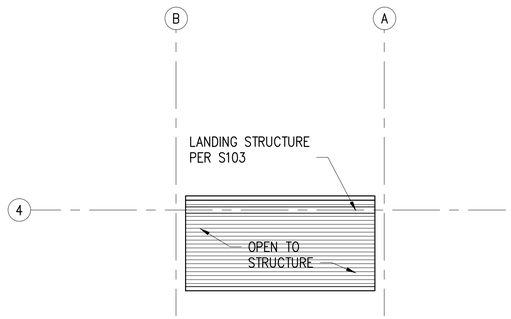
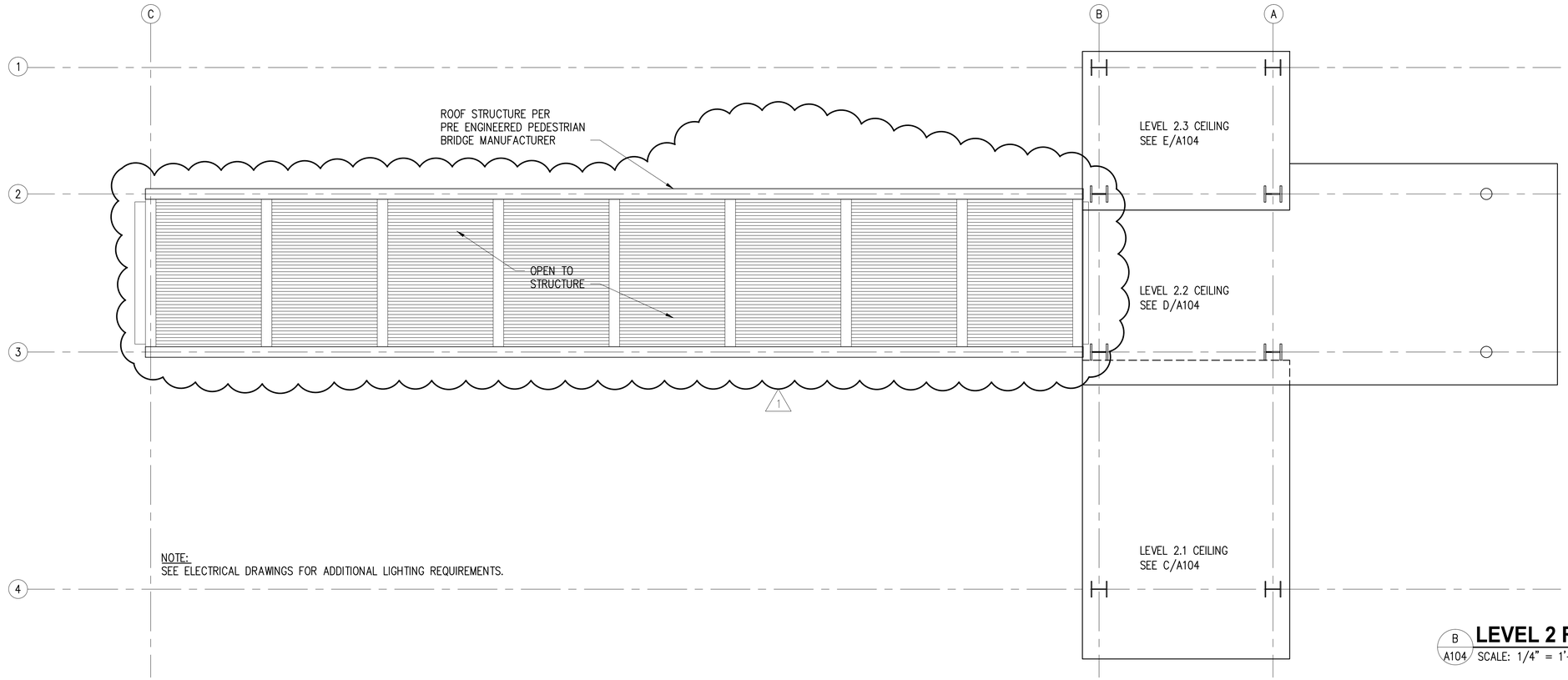


A A104 **LEVEL 1 RCP** (TYP STAIR LANDING RCP)
SCALE: 1/4" = 1'-0"



B A104 **LEVEL 2 REFLECTED**
SCALE: 1/4" = 1'-0"

A104

NO.	DATE	BY	APPR.	REVISIONS
1	7/16	JP	GB	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A104_ROOF-RFLT CEIL.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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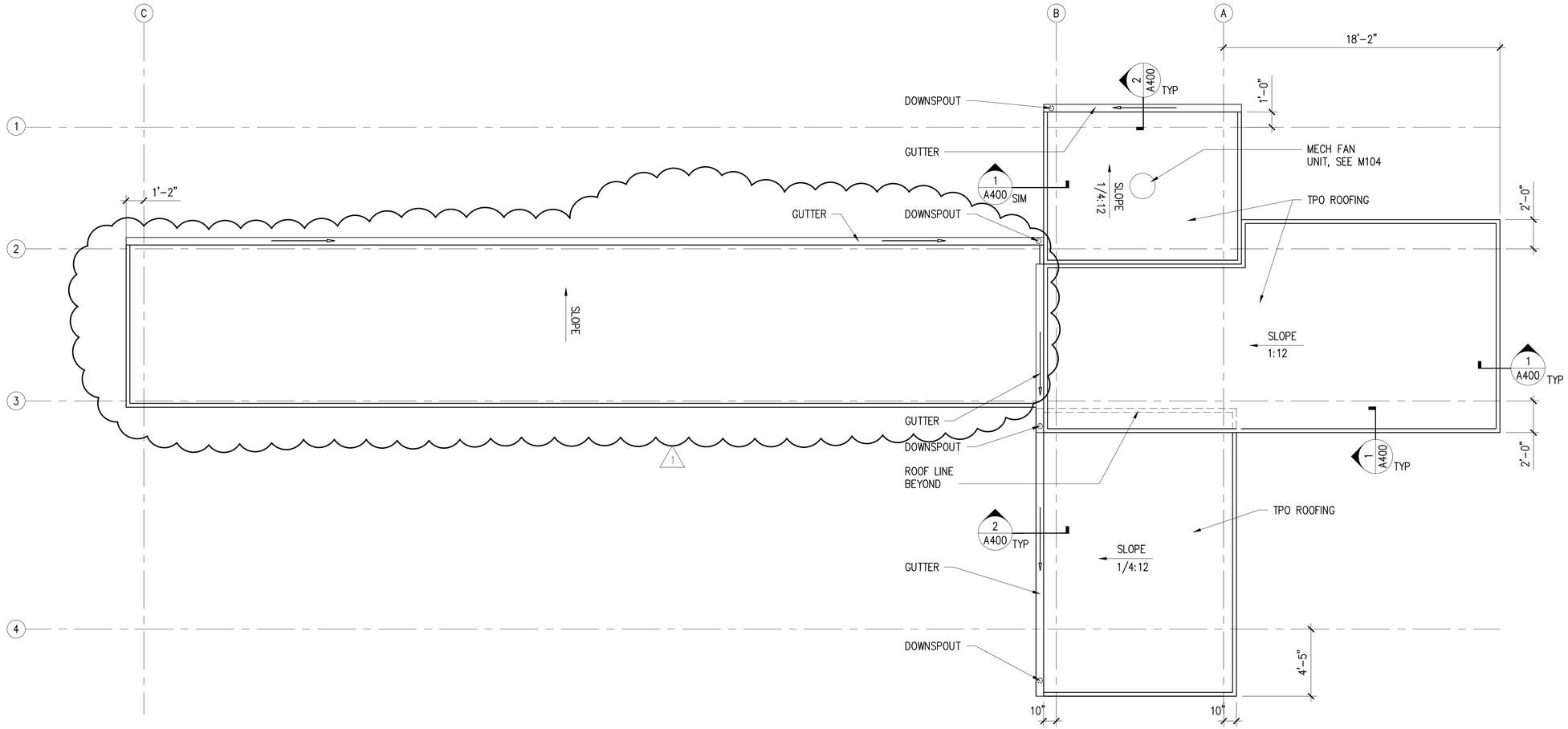
K:\PROJECTS\KIRKLAND\13152 - P&R CKC Conn\2_DESIGN\A_Drawings\Contract\A104_ROOF-RFLT CEIL.dwg 8/23/2017 8:42 AM



A ROOF PLAN
A105 SCALE: 1/4" = 1'-0"

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NO.	DATE	BY	APPR.	REVISIONS
1	7/16	JP	GB	BUILDING COMMENT RESPONSES

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ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A105_ROOF-PLN.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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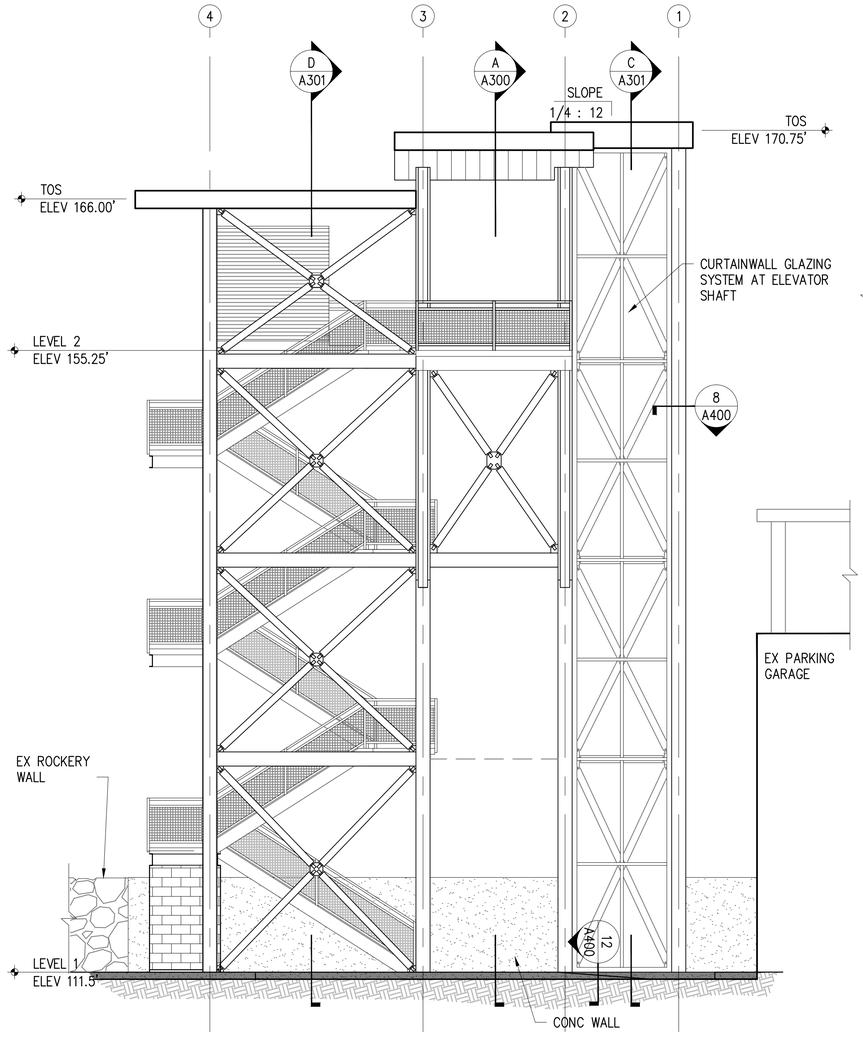
ARCHITECTURAL

ROOF PLAN

KPG PROJECT No. 13152

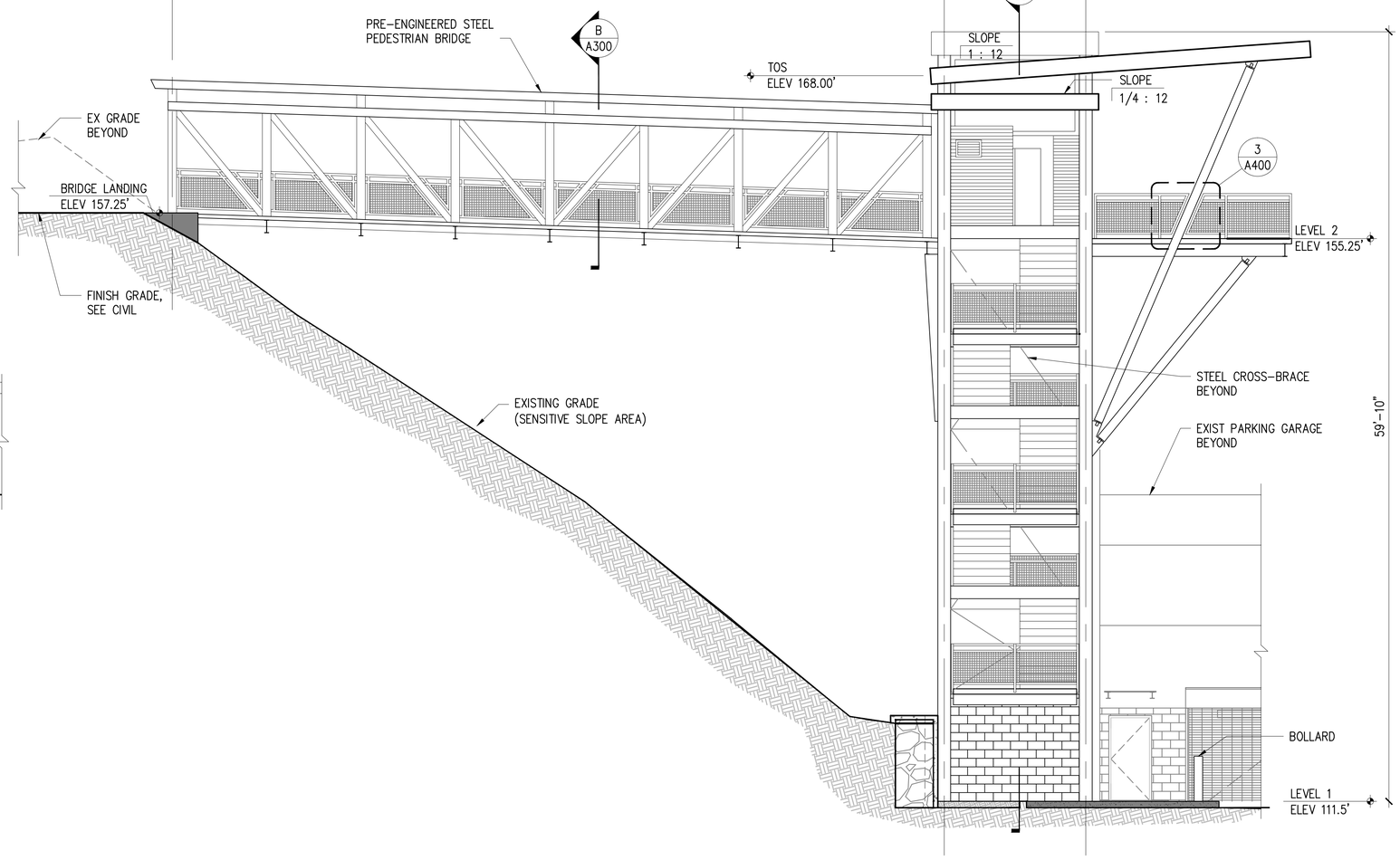
SHT 17 OF 55

A105



B A101 **WEST ELEVATION**

SCALE: 3/16" = 1'-0"



A A103 **NORTH ELEVATION**

SCALE: 3/16" = 1'-0"

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A200

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A200_ELEV.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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ARCHITECTURAL
NORTH & WEST
EXTERIOR ELEVATIONS

KPG PROJECT No. 13152

SHT 18 OF 55

A201

NO.	DATE	BY	APPR.	REVISIONS
2	4/17	JP	DD	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER DATE
PROJECT MANAGER DATE
PROJECT ENGINEER DATE

A201_ELEV.dwg
FILENAME
G BARBER SEPT 2014
DESIGNED BY DATE
J PALMER SEPT 2014
DRAWN BY DATE
DJ DEAN APRIL 2017
CHECKED BY DATE

REGISTERED ARCHITECT
DENNIS W. DEAN, JR.
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SOUTH & EAST
EXTERIOR ELEVATIONS

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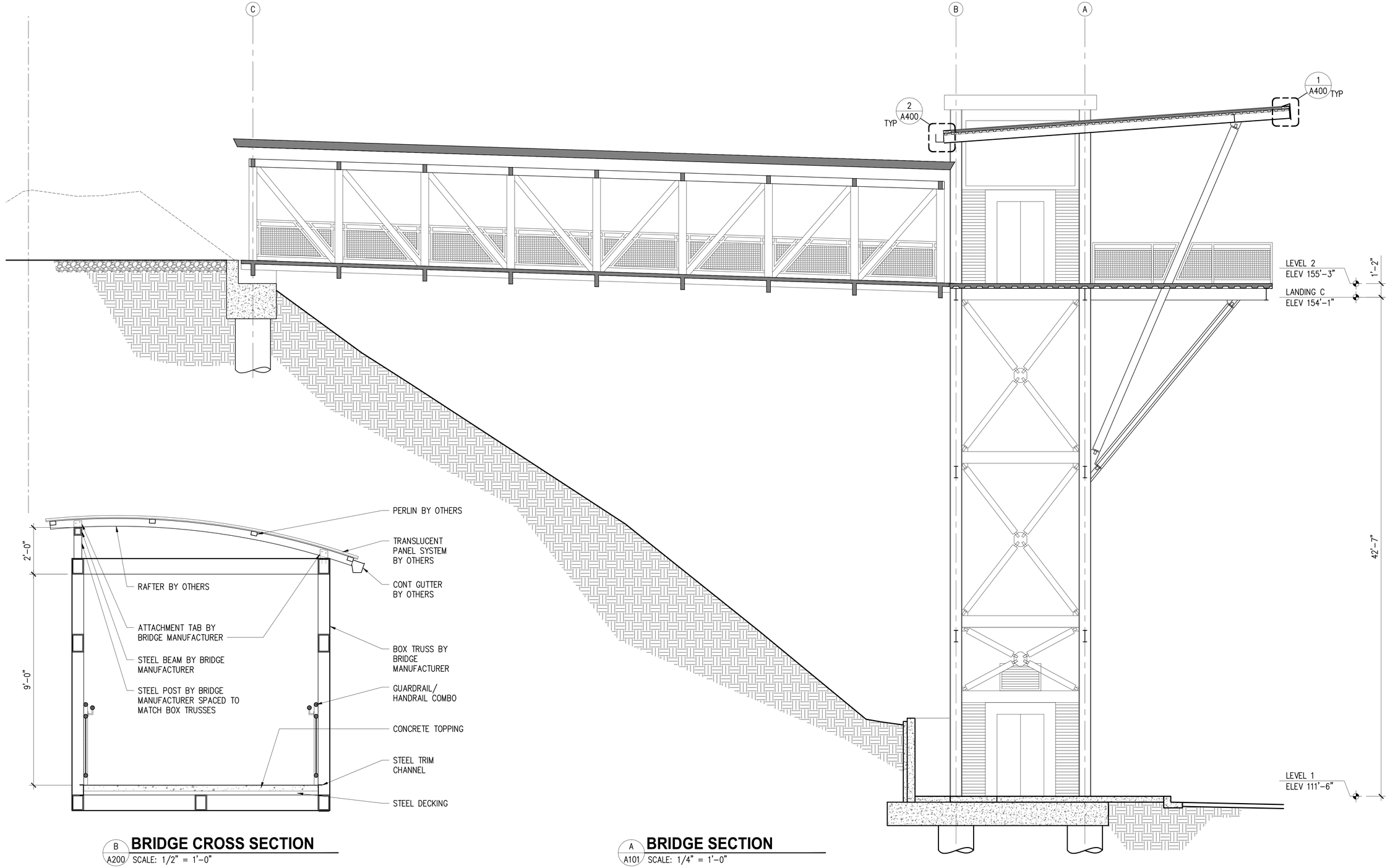

B A200 **BRIDGE CROSS SECTION**
SCALE: 1/2" = 1'-0"

A A101 **BRIDGE SECTION**
SCALE: 1/4" = 1'-0"

K:\PROJECTS\KIRKLAND\13152 - P&R CKC Conn\2_DESIGN\A_Drawings\Contract\A300_OVERALL SECT.dwg 8/23/2017 8:48 AM

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A300_OVERALL SECT.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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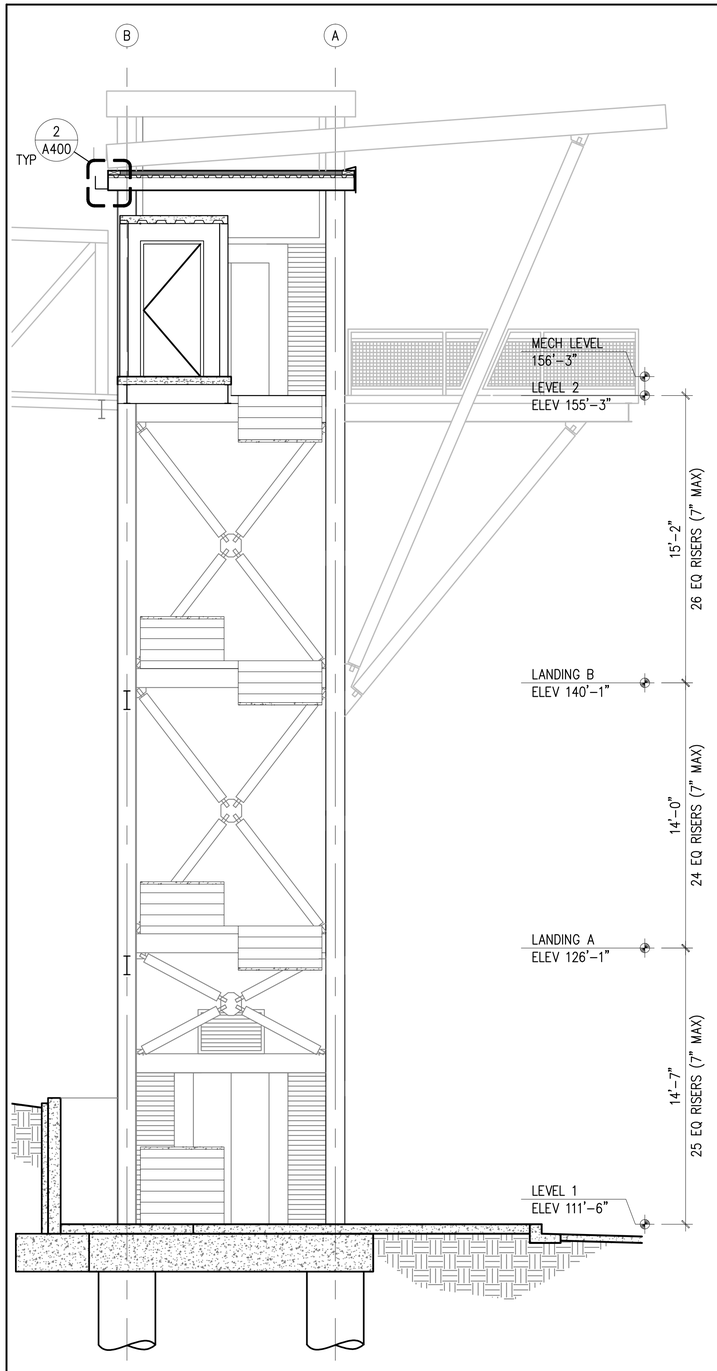
ARCHITECTURAL OVERALL BUILDING SECTION @ BRIDGE

KPG PROJECT No. 13152

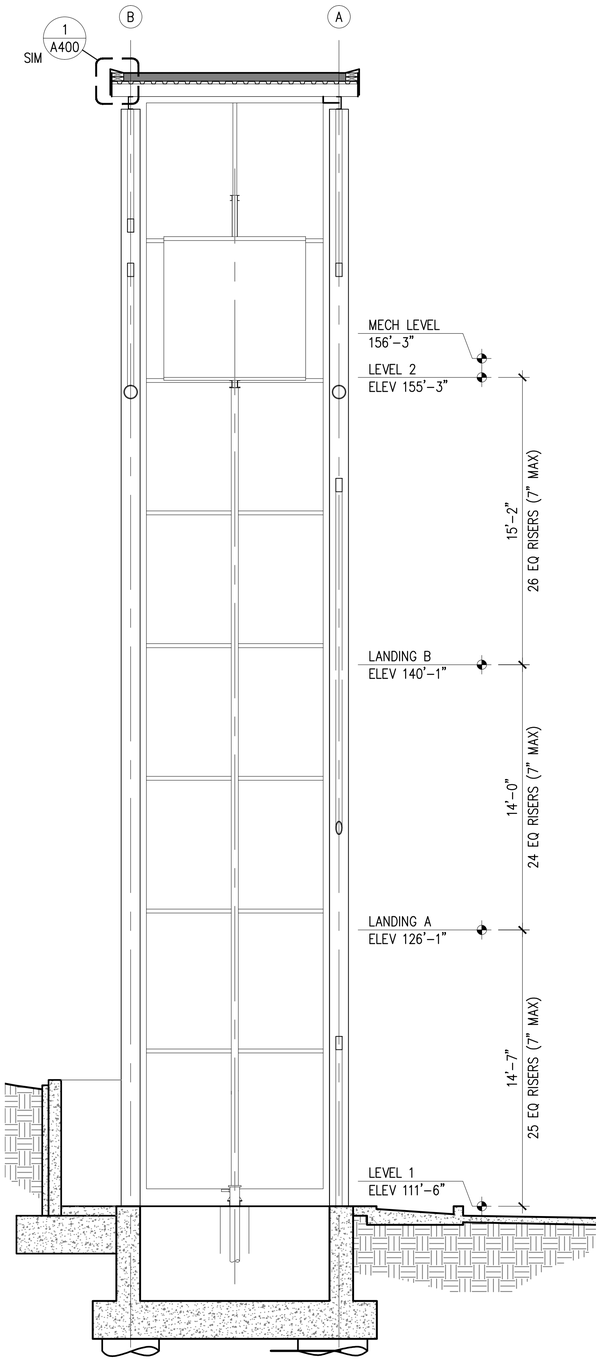
SHT 20 OF 55

A300



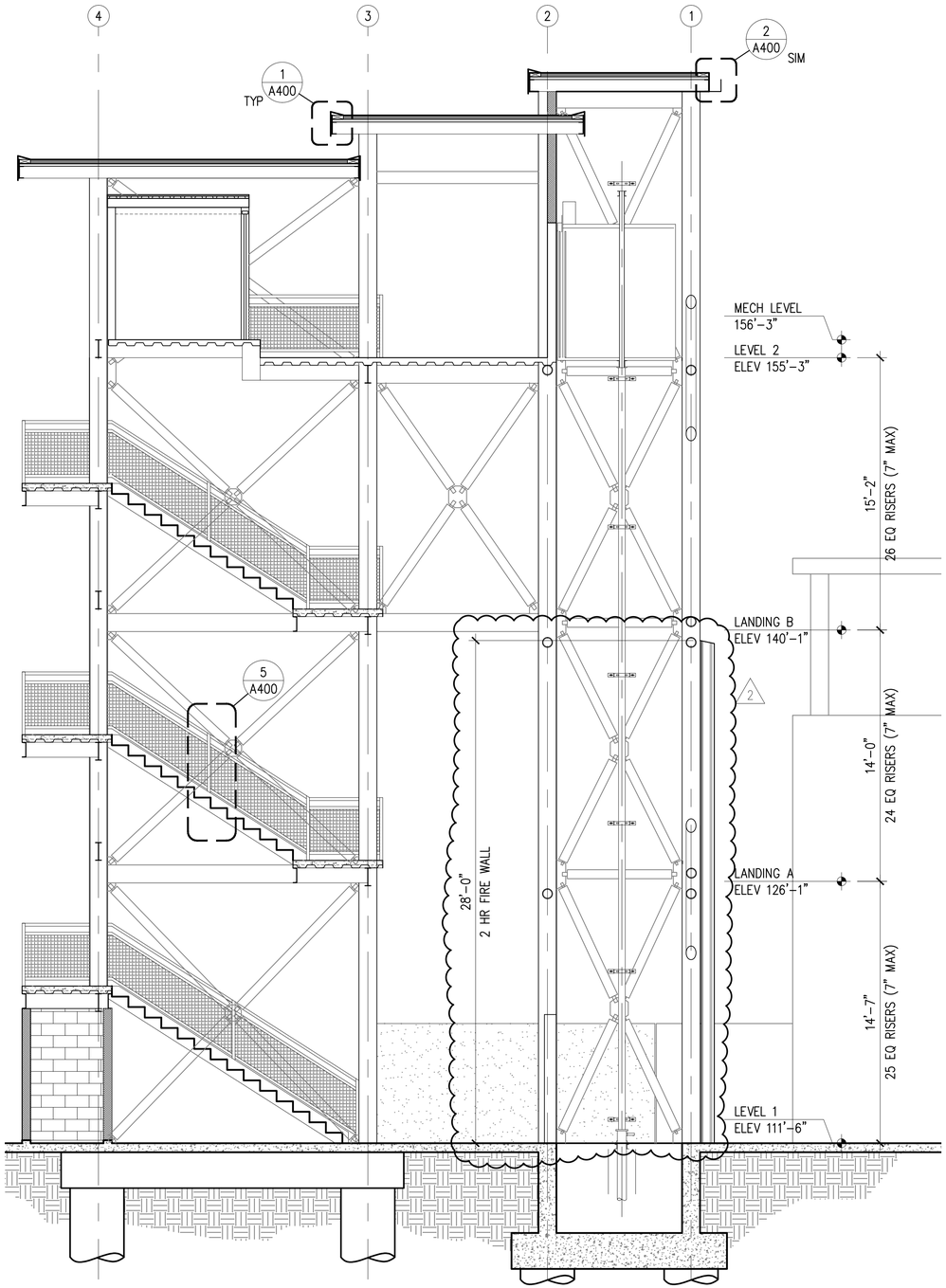
D A101 **STAIR SECTION**

SCALE: 1/4" = 1'-0"



C A101 **ELEVATOR SECTION**

SCALE: 1/4" = 1'-0"



B A101 **LANDING SECTION**

SCALE: 1/4" = 1'-0"

A301

NO.	DATE	BY	APPR.	REVISIONS
2	4/17	JP	DD	BUILDING COMMENT RESPONSES

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A301_VERT CIRC SECT.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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ARCHITECTURAL
OVERALL BUILDING
SECTIONS @ STAIR & ELEVATOR

KPG PROJECT No. 13152

SHT 21 OF 55

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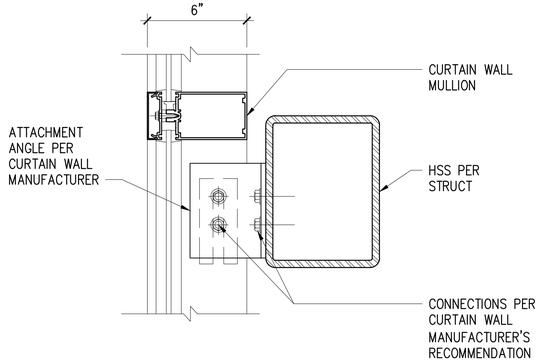
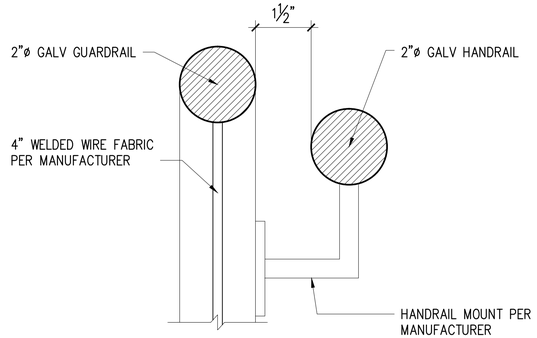
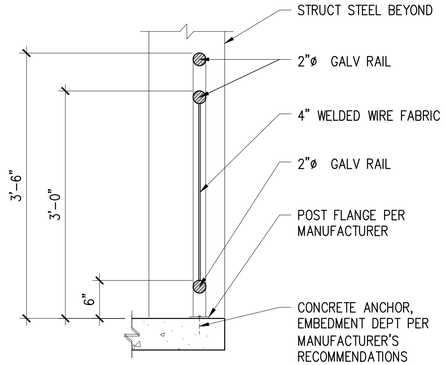


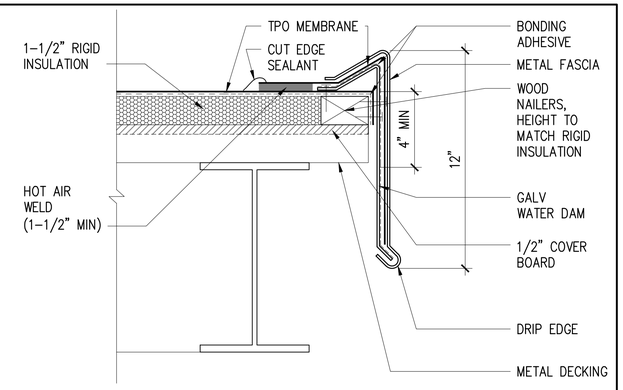
10 CURTAIN WALL ATTACHMENT SECTION
SCALE: 3" = 1'-0"



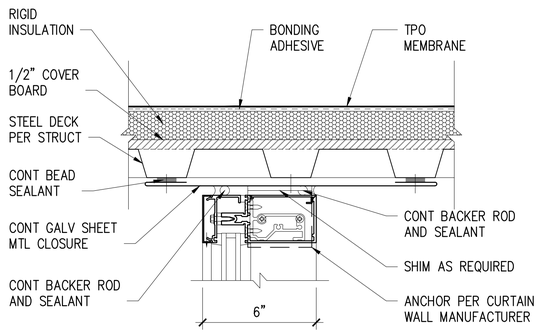
7 HANDRAIL SECTION DETAIL
SCALE: 6" = 1'-0"



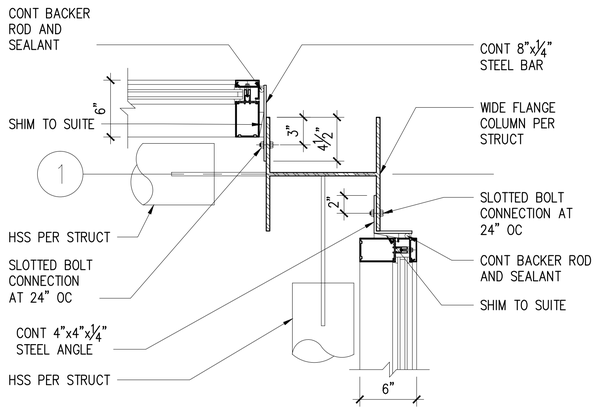
4 GUARDRAIL SECTION DETAIL
SCALE: 1" = 1'-0"



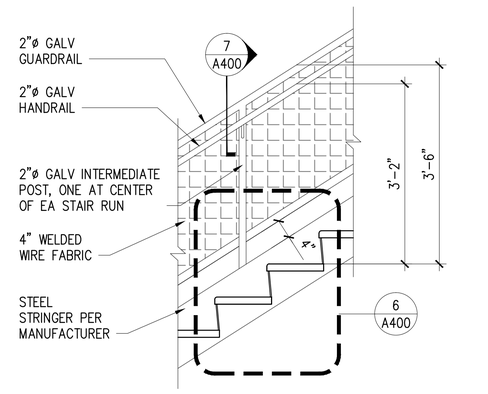
1 EAVE/ RAKE DETAIL
A105 SCALE: 3" = 1'-0"



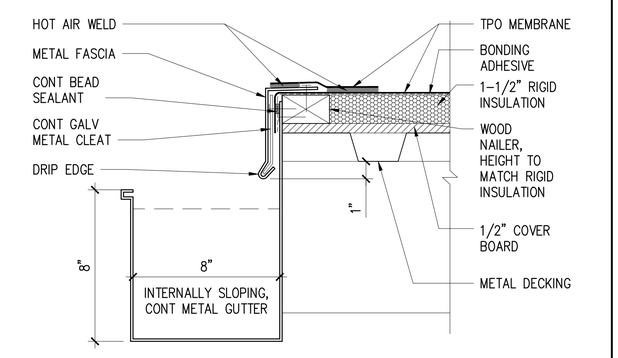
11 CURTAIN WALL HEADER DETAIL
A201 SCALE: 3" = 1'-0"



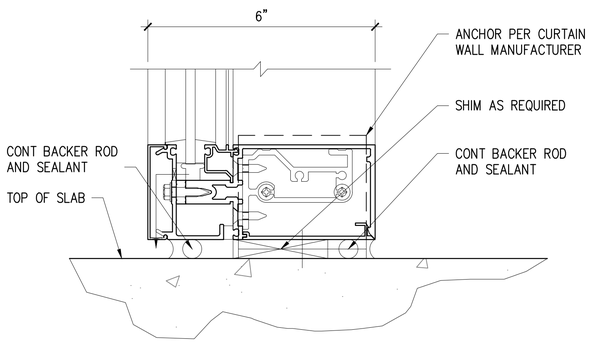
8 CURTAIN WALL CORNER DETAIL
A103 SCALE: 1-1/2" = 1'-0"



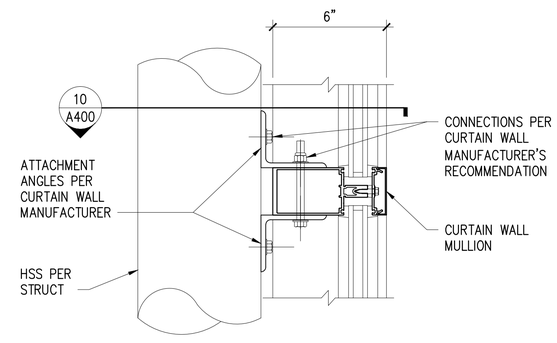
5 HANDRAIL DETAIL
A301 SCALE: 3/4" = 1'-0"



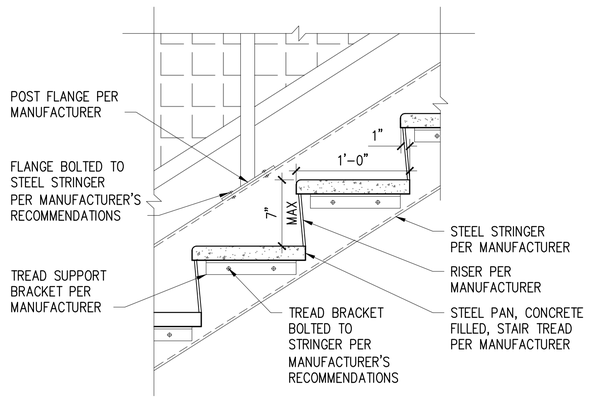
2 GUTTER DETAIL
A105 SCALE: 3" = 1'-0"



12 CURTAIN WALL SILL DETAIL
A200 SCALE: 6" = 1'-0"



9 CURTAIN WALL ATTACHMENT DETAIL
A103 SCALE: 3" = 1'-0"



6 STAIR DETAIL
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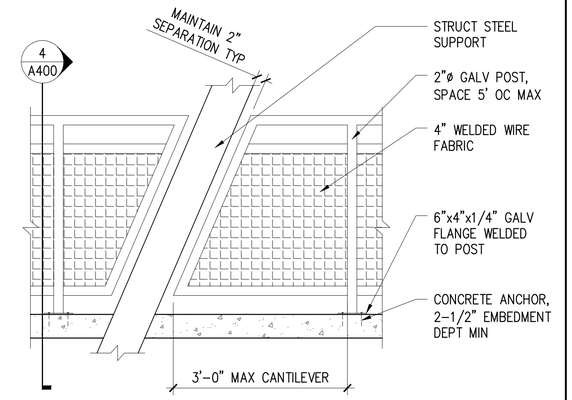

3 GUARDRAIL DETAIL
A200 SCALE: 3/4" = 1'-0"

A400

NO.	DATE	BY	APPR.	REVISIONS

Approved By	
ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

A401_DTLS.dwg	
FILENAME	
G BARBER	SEPT 2014
DESIGNED BY	DATE
J PALMER	SEPT 2014
DRAWN BY	DATE
DJ DEAN	APRIL 2017
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9813 REGISTERED ARCHITECT DENNIS W. BLEM JR. STATE OF WASHINGTON

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PARK & RIDE CKC CONNECT

ARCHITECTURAL
ROOF, RAILING, STAIR AND GLAZING DETAILS

KPG PROJECT No. 13152 | SHT 22 OF 55

A400

GENERAL STRUCTURAL NOTES

DESIGN CRITERIA

APPLICABLE BUILDING NOTES AND CODES
INTERNATIONAL BUILDING CODE, IBC 2012 EDITION, EXCEPT WHERE OTHER CODES ARE MORE RESTRICTIVE.

LIVE LOADS

PEDESTRIAN BRIDGE	100psf
STAIR	100psf
SNOW	25psf
HOIST (ELEVATOR)	5 TON

WIND LOADS

BASIC WIND SPEED	110mph
EXPOSURE	C
IMPORTANCE FACTOR, Iw	1.0

SEISMIC LOADS
MAPPED AND DESIGN SPECTRAL ACCELERATIONS:

SHORT PERIODS, S_s =	1.278
1 SECOND PERIOD, S_1 =	0.491
SHORT PERIOD, S_{DS}	0.852
1 SECOND PERIOD, S_{D1}	0.428
IMPORTANCE FACTOR, I_e =	1.0
SITE CLASS =	C
OCCUPANCY RISK CATEGORY	II
SEISMIC DESIGN CATEGORY	D

RESPONSE MODIFICATION COEFFICIENT, R = 2.5, 3/32 = 2.0, C_d = 2.5
BASE SHEAR – V_{NS} = 90K; V_{EW} = 100K
SEISMIC FORCE RESISTING SYSTEM (SFRS)
STEEL ORDINARY CONCENTRICALLY BRACED FRAME ALONG GRID A & B.
STEEL ORDINARY CONCENTRICALLY BRACED MOMENT FRAME ALONG GRIDS 2 & 3.

FOUNDATION

PER GEOTECHNICAL REPORT PREPARED BY GEODESIGN, INC., DATED DECEMBER 8, 2015.
DESIGN SOIL BEARING PRESSURES

SPREAD FOOTING ON NATIVE MATERIAL	6,000psf
SPREAD FOOTING ON STRUCTURAL FILL	3,000psf

ALL SLABS ON GRADE AND FOOTINGS SHALL BEAR ON COMPACTED GRANULAR FILL AS SPECIFIED, MINIMUM THICKNESS 8 INCHES.
DEPTH OF FOOTING BELOW FINISHED GRADE – 18 INCHES MINIMUM.

DESIGN SOIL LATERAL PRESSURES
YIELDING WALL (ACTIVE PRESSURES)

UNDRAINED CONDITION	1H pcf
PASSIVE PRESSURE	
DRAINED CONDITION	300D pcf
COEFFICIENT OF BASE FRICTION	0.35

PROVIDE ADEQUATE SUPPORT TO WALLS AGAINST BACKFILL PLACEMENT. MAINTAIN SUPPORTS UNTIL BACKFILL ON BOTH SIDES IS IN PLACE. SHORE ALL EXCAVATIONS AS REQUIRED.

CONCRETE

ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, LATEST EDITION. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318 BUILDING CODE, LATEST EDITION.

DESIGN STRENGTH
CAST-IN-PLACE CONCRETE, UNLESS OTHERWISE NOTED:

CONCRETE CLASS 4000A, f'c = 4000 psi AT 28 DAYS

CONCRETE CLASS 4000P, f'c = 4000 psi AT 28 DAYS FOR SOLDIER PILES PER WSDOT STANDARD SPECIFICATIONS

CONCRETE CLASS 5000P, f'c = 5000 psi AT 28 DAYS FOR DRILLED SHAFTS PER WSDOT STANDARD SPECIFICATIONS

REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60.

ANCHOR BOLTS
ANCHOR BOLTS SHALL CONFORM TO ASTM A307 GRADE A AND ASTM F1554 GRADE 105 AS NOTED IN THE PLANS. SET ALL BOLTS BY TEMPLATE.

DICA – EXPANSION BOLTS
EXPANSION BOLTS SHALL BE STAINLESS STEEL TYPE AISI 304 "KWIK BOLTZ TYPE TZ" BY HILTI CORP., OR APPROVED EQUAL. ICBO CERTIFICATION AND SPECIAL INSPECTION IS REQUIRED.

STEEL

MATERIAL
ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS:

WIDE FLANGE SHAPES	ASTM A992 OR ASTM A572, GRADE 50
TEES, CHANNELS, ANGLES, PLATES AND BARS	A36, UNLESS OTHERWISE NOTED
HOLLOW STRUCTURAL SECTIONS (HSS)	
SQUARE AND RECTANGULAR, HSS	ASTM A500, GRADE B, FY = 46 KSI
ROUND, HSS	ASTM A500, GRADE B, FY = 42 KSI
PIPES	ASTM A53, GRADE B, FY = 35 KSI

MINIMUM CONNECTION SHALL BE TWO-BOLTS CONNECTION USING ¾" DIAMETER HIGH STRENGTH BOLTS ASTM DESIGNATION A325SC UNLESS NOTED OTHERWISE. ALL ⅞" DIAMETER HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325X AND ALL 1" DIAMETER HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A490X. ERECTION BOLTS SHALL BE NON-SLIP CRITICAL.

ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED, TIGHTENED AND INSPECTED IN ACCORDANCE WITH AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. THE CRITERIA FOR SLIP-CRITICAL (SC) CONNECTION SHALL APPLY TO ALL CONNECTIONS UNLESS NOTED OTHERWISE. SLIP-CRITICAL CONNECTION SHALL USE LOAD INDICATOR WASHERS OR TENSION CONTROL BOLTS INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR BY TURN-OF-THE-NUT METHOD.. ALL HOLES SHALL BE STANDARD SIZE UNLESS NOTED OTHERWISE.

HEADED SHEAR STUDS SHALL BE "NELSON STUDS" BY TRW, INC., OR APPROVED EQUAL.

MACHINE BOLTS SHALL BE ASTM A307 AND SHALL BE PROVIDED WITH LOCK NUT WASHERS UNDER NUTS OR SELF LOCKING NUTS.

WELDING
ALL WELDING SHALL CONFORM TO AWS DI.I WELDING CODE. MINIMUM SIZE WELDS 3/16" CONTINUOUS FILLET. WELDING ELECTRODES SHALL BE 70XX SERIES CONFORMING TO ANSI/AWS DI.I TABLE 3.I AND ELECTRODE SPECIFICATION AWS A5. WELDING SHALL BE CONDUCTED BY WABO CERTIFIED WELDER.

THE WELDING AT THE SEISMIC FORCE RESISTING SYSTEMS (SFRS) SHALL BE MADE WITH FILLER METAL PRODUCING WELDS WITH A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBF AT MINUS 20 DEGREES-F. FILLERS IN NON-SRFS CONNECTIONS SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBF AT MINUS 40 DEGREES-F.

PAINTING
STRUCTURAL STEEL SHALL BE PAINTED IN CONFORMANCE WITH SPECIFICATIONS.

STEEL DECKING
STEEL DECK SHALL BE OF DEPTH AND GAGE SHOWN ON THE STRUCTURAL DRAWINGS. THE AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATIONS FOR THE DESIGN OF LIGHT GAGE STEEL STRUCTURAL MEMBERS" SHALL GOVERN THE DESIGN OF ALL DECK UNITS. STEEL DECK AND ALL OF ITS FLASHINGS SHALL CONFORM TO ASTM A446, GRADE A OR HIGHER. GALVANIZING SHALL BE IN ACCORDANCE WITH ASTM A525. MINIMUM END SEAT – 2 INCHES.
FASTEN DECK UNITS TO STEEL AT TRANSVERSE, END AND SIDE SUPPORTS WITH THREE 3/4" DIAMETER SPOT WELDS PER 2'-0" OF WIDTH. FASTEN SIDE LAPS OF ADJACENT UNITS WITH 1-1/2" SEAM WELDS AT 2'-0" ON CENTER. WELDING TO DEVELOP REQUIRED CAPACITIES. PROVIDE ADDITIONAL STEEL REINFORCEMENT AND CLOSURE PIECES AS REQUIRED FOR STRENGTH, CONTINUITY OF DECKING AND SUPPORT OF OTHER WORK.

MINIMUM DECK PROPERTIES
ROOF STEEL DECK
I = 0.377 IN^4/FT
+S = 0.411 IN^3/FT
-S = 0.417 IN^3/FT
Q = 1000.0 LB/FT

COMPOSITE STEEL DECK
I = 0.555 IN^4/FT
+S = 0.510 IN^3/FT
-S = 0.511 IN^3/FT

MISCELLANEOUS

COORDINATE AND VERIFY ALL DIMENSIONS WITH CIVIL DRAWINGS AND VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

SUBMIT ALL REQUIRED SHOP DRAWINGS AND RECEIVE THEIR SATISFACTORY REVIEW FROM THE ENGINEER, PRIOR TO FABRICATION.

DEFERRED SUBMITTALS INCLUDE
PRE-ENGINEERED STEEL BRIDGE INCLUDING ANCHOR BOLTS
METAL STAIR
CONCRETE MIX DESIGN
CURTAIN WALL SYSTEM

CALCULATIONS AND DRAWINGS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS SHALL BE PREPARED BY A WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER. SUBMIT CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER AND BUILDING OFFICIAL FOR SATISFACTORY REVIEW PRIOR TO FABRICATION.

ABBREVIATIONS

@	AT	FDN	FOUNDATION	R	RADIUS
AB	ANCHOR BOLT	FT	FEET OR FOOT	REQD	REQUIRED
		FTG	FOOTING		
BOT	BOTTOM	IE	INVERT ELEVATION	SIM	SIMILAR
		IF	INSIDE FACE	SPCG	SPACING
CL, ℄	CENTER LINE	IN	INCH	SS	STAINLESS STEEL
CLR	CLEAR	KSI	KIPS PER SQUARE INCH	STD	STANDARD
CONC	CONCRETE				
CONT	CONTINUOUS	LB	POUND	T&B	TOP AND BOTTOM
		MAX	MAXIMUM	TOC	TOP OF CONCRETE
DIA	DIAMETER	MIN	MINIMUM	TOF	TOP OF FOOTING
DICA	DRILLED IN CONCRETE ANCHOR			TOW	TOP OF WALL
DWG	DRAWING	OC	ON CENTER, CENTERS	TYP	TYPICAL
EA	EACH				
EF	EACH FACE	PSF	POUNDS PER SQUARE FOOT	UNO	UNLESS NOTED OTHERWISE
EL	ELEVATION	PSI	POUNDS PER SQUARE INCH	w/	WITH
ES	EACH SIDE				
EW	EACH WAY				

LEGEND

COLUMNS PASSING THRU THIS LEVEL
COLUMNS BELOW THIS LEVEL
MOMENT CONNECTION
SLOPE
STEP (HEIGHT)
WELDED WIRE FABRIC
STEEL IN CROSS SECTION
CONCRETE
SOIL/EARTH
GROUT

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

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FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

STATE OF WASHINGTON · 19813 · STRUCTURAL ENGINEER · PROFESSIONAL ENGINEER
05/06/2016

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PERMIT SUBMITTAL

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL
GENERAL NOTES AND ABBBREVIATIONS

KPG PROJECT No.

S1

SHT 23 OF 55

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1. STRUCTURAL SPECIAL INSPECTIONS AND TESTING SHALL CONFORM TO CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE (IBC). REFER TO TABLES 1 AND 2 FOR SPECIAL INSPECTION AND TABLES 3 AND 4 FOR TESTING REQUIREMENTS.

2. REFERENCE CODES AND STANDARDS ARE AS FOLLOWS:

IBC	–	2012
ACI	–	318–11
AWS	–	CURRENT EDITION
ASTM	–	CURRENT EDITION
AISC	–	360–10
	–	341–10
RCSC	–	2009
TMS	–	402–11, 602–11

3. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A880 (STEEL), AND ASTM E543 (NON–DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE STRUCTURAL ENGINEER A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1.1 OF AWS D1.1 AND WABO.

4. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION AND NOTED IN THE INSPECTION REPORTS. ISSUES REQUIRING IMMEDIATE CORRECTIVE ACTIONS OR ENGINEERING INPUT ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY UPON DISCOVERY.

5. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.

6. CONTINUOUS SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.
PERIODIC SPECIAL INSPECTION: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

7. WHERE PERIODIC INSPECTION IS ALLOWED IN ACCORDANCE WITH THE ANCHOR ICC EVALUATION REPORT, INSPECTIONS SHALL BE AS FOLLOWS:

- FOR ALL ANCHORS, PRIOR TO CONCEALMENT, VERIFY: ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR SPACING AND EDGE DISTANCE.
- FOR EACH ANCHOR TYPE AND SIZE, INSPECTOR SHALL BE ONSITE TO CONTINUOUSLY INSPECT A MINIMUM OF THE FIRST 10 ANCHORS INSTALLED BY EACH INSTALLER FOR CONFORMANCE WITH ICC EVALUATION REPORT. PROVIDED ALL ANCHORS ARE INSTALLED CORRECTLY PER MANUFACTURER'S INSTRUCTIONS, PROVIDE PERIODIC INSPECTION ON A MINIMUM OF 10% OF THE NEXT 1000 ANCHORS BY EACH INSTALLER AND A MINIMUM OF 5% OF THE REMAINING ANCHORS BY EACH INSTALLER INSPECTIONS SHALL OCCUR A MINIMUM OF ONCE PER WEEK AT A RANDOM TIME WHILE ANCHOR INSTALLATION IS ONGOING. ANY NON–COMPLIANCE ISSUES SHALL RESET THE INSPECTION REQUIREMENTS TO TEN (10) CONTINUOUS INSPECTIONS. NON–COMPLIANT ANCHORS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR REVIEW AND SHALL BE BROUGHT INTO COMPLIANCE BY EITHER TESTING OR RE–INSTALLATION.
- INSPECTION REPORTS SHALL IDENTIFY NAMES OF INSTALLERS.
- SPECIAL INSPECTOR SHALL PROVIDE DOCUMENTATION AT THE END OF ANCHOR INSTALLATIONS STATING THAT THE MINIMUM NUMBER OF ANCHORS WERE INSPECTED.

8. OBSERVE: OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
PERFORM: PERFORM THESE TASKS FOR EACH ELEMENT.

TABLE 1 – REQUIRED GEOTECHNICAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 5)		
			CONTINUOUS	PERIODIC	
SOILS					
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS AND DRILLED SHAFTS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	TB 1705.6 1705.6	GEOTECHNICAL REPORT		X	BY THE GEOTECHNICAL ENGINEER
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.				X	
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.			X		
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.				X	
OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AN ACCURATE RECORDS FOR EACH ELEMENT.	TB 1705.8	GEOTECHNICAL REPORT	X		BY THE GEOTECHNICAL ENGINEER
VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END–BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.			X		
FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3.					2

TABLE 2 – REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 5)		
			CONTINUOUS	PERIODIC	
CONCRETE					
INSPECTION OF REINFORCING STEEL AND PLACEMENT	TB 1705.3(1) 1705.3 1910.4	ACI 318 1.3.2 ACI 318 3.5 ACI 318 7.1–7.7		X	TOLERANCE AND REINFORCING PLACEMENT PER ACI 318 7.5
INSPECTION OF REINFORCING STEEL WELDING	TB 1705.3(2) 1705.2.2.1.2	ACI 318 3.5.2 AWS D1.4, SECTION 7			EXCEPT AS NOTED OTHERWISE
MATERIAL VERIFICATION OF WELD FILLER METALS	1705.2.2.1.2	ACI 318 3.5.2 AWS D1.4 SECTION 7		X	MANUFACTURER'S CERTIFIED TEST REPORTS
VERIFYING USE OF PROPER WPS'S				X	COPY OF WELDING PROCEDURE SPECIFICATIONS
VERIFYING WELDER QUALIFICATIONS				X	COPY OF QUALIFICATION CARDS
VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	TB 1705.2.2 (2.B.1)	AWS D1.4 ACI 318 3.5.2		X	CERTIFIED MILL TEST REPORTS
INSPECTION OF ANCHORS CAST IN CONCRETE	WAC 51–50–1705	ACI 318 D.9.2		X	ALL ANCHORS SHALL BE VISUALLY INSPECTED
INSPECTION OF ANCHORS POST–INSTALLED IN HARDENED CONCRETE MEMBERS:					
ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	WAC 51–50–1705	ICC EVALUATION RPT ACI 318 D.9.2.4	X		
MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE	WAC 51–50–1705	ICC EVALUATION RPT ACI 318 D.9.2		X (NOTE 7)	ALL ANCHORS SHALL BE VISUALLY INSPECTED
VERIFYING USE OF REQUIRED DESIGN MIX.	TB 1705.3(5) 1705.3 1904 1910.2 1910.3	ACI 318 1.3.2 ACI 318 4 ACI 318 5.2–5.4		X	
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TEST, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	TB 1705.3(6) 1910.10	ASTM C 172 ASTM C 31 ACI 318 5.6,5.8	X		
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	TB 1705.3(7) 1705.3 1910.6–8	ACI 318 5.9–5.10	X		
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	TB 1705.3(8) 1705.3 1910.9	ACI 318 1.3.2 ACI 318 5.11–5.13		X	
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	TB 1705.3(12) 1705.3	ACI 318 6.1.1, 6.2		X	
REINFORCING STEEL MECHANICAL COUPLERS, TERMINATORS AND FORMSAVERS		ICC EVALUATION REPORTS		X	VISUALLY INSPECT FOR CORRECT ASSEMBLY AND LOCATION

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS
2	04/17/17	AB		RESPONSE TO BUILDING DEPARTMENT COMMENTS NO. 2

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

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FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

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STRUCTURAL
SPECIAL INSTRUCTIONS AND TESTING

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TABLE 2 CONTINUED – REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 5)		
			CONTINUOUS	PERIODIC	
STEEL					
INSPECTION TASKS PRIOR TO WELDING:					
WELDING PROCEDURE SPECIFICATIONS (WPSS) AVAILABLE	1705.2	AISC 360: TB N5.4–1		X	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		AISC 360: TB N5.4–1		X	
MATERIAL IDENTIFICATION (TYPE/GRADE)		AISC 360: TB N5.4–1	X		
WELDER IDENTIFICATION SYSTEM		AISC 360: TB N5.4–1	X		
FIT–UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY): JOINT PREPARATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE AND FIT (IF APPLICABLE)		AISC 360: TB N5.4–1	X		
INSPECTION TASKS PRIOR TO WELDING:					
CONFIGURATION AND FINISH OF ACCESS HOLES	1705.2	AISC 360: TB N5.4–1	X		
FIT–UP OF FILLET WELDS: DIMENSIONS (ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE AND FIT (IF APPLICABLE)		AISC 360: TB N5.4–1	X		
CHECK WELDING EQUIPMENT		AISC 360: TB N5.4–1			
INSPECTION TASKS DURING WELDING:					
USE OF QUALIFIED WELDERS	1705.2	AISC 360: TB N5.4–2	X		
CONTROL AND HANDLING OF WELDING CONSUMABLES: PACKAGING, EXPOSURE CONTROL		AISC 360: TB N5.4–2	X		
NO WELDING OVER CRACKED TACK WELDS		AISC 360: TB N5.4–2	X		
ENVIRONMENTAL CONDITIONS: WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE		AISC 360: TB N5.4–2	X		
WPS FOLLOWED: SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.), PROPER POSITION (F, V, H, OH)		AISC 360: TB N5.4–2	X		
WELDING TECHNIQUES: INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITATIONS, EACH PASS MEETS QUALITY REQUIREMENTS		AISC 360: TB N5.4–2	X		
INSPECTION TASKS AFTER WELDING:					
WELDS CLEANED	1705.2	AISC 360: TB N5.4–3	X		
SIZE, LENGTH AND LOCATION OF WELDS		AISC 360: TB N5.4–3		X	
WELDS MEET VISUAL ACCEPTANCE CRITERIA: CRACK PROHIBITION, WELD/BASE–METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, POROSITY		AISC 360: TB N5.4–3		X	
ARC STRIKES		AISC 360: TB N5.4–3		X	
K–AREA		AISC 360: TB N5.4–3		X	
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)		AISC 360: TB N5.4–3		X	
REPAIR ACTIVITIES		AISC 360: TB N5.4–3		X	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER		AISC 360: TB N5.4–3		X	

TABLE 2 CONTINUED – REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 8)		
			OBSERVE	PERFORM	
STEEL (CONTINUED)					
INSPECTION TASKS PRIOR TO BOLTING:					
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	1705.2	AISC 360: TB N5.6–1		X	
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		AISC 360: TB N5.6–1	X		
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)		AISC 360: TB N5.6–1	X		
PROPER BOLTING PROCEDURE FOR JOINT DETAIL		AISC 360: TB N5.6–1	X		
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		AISC 360: TB N5.6–1	X		
PRE–INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED		AISC 360: TB N5.6–1	X		
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS		AISC 360: TB N5.6–1	X		
INSPECTION TASKS DURING BOLTING:					
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	1705.2	AISC 360: TB N5.6–2	X		
JOINT BROUGHT TO SNUG–TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		AISC 360: TB N5.6–2	X		
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		AISC 360: TB N5.6–2	X		
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES		AISC 360: TB N5.6–2	X		
INSPECTION TASKS AFTER BOLTING:					
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	1705.2	AISC 360: TB N5.6–3		X	

TABLE 2A – REQUIRED STRUCTURAL SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY (NOTE 5)		
			CONTINUOUS	PERIODIC	
GENERAL					
SEISMIC FORCE–RESISTING SYSTEMS (SFRS)	1704.3.2 1705.11		X		REFERENCE GENERAL STRUCTURAL NOTES FOR OUTLINE OF SFRS SYSTEM.

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

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I IKEDA SEPT 4 2014 DESIGNED BY DATE

K FLEMING SEPT 4 2014 DRAWN BY DATE

A BRIGHT SEPT 4 2014 CHECKED BY DATE

STATE OF WASHINGTON · 19813 · REGISTERED STRUCTURAL ENGINEER · PROFESSIONAL ENGINEER

05/06/2016

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL
SPECIAL INSTRUCTIONS AND TESTING

KPG PROJECT No.

S3

SHT 25 OF 55

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TABLE 3 – REQUIRED STRUCTURAL TESTING

SYSTEM OR MATERIAL	TESTING				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
CONCRETE					
COMPOSITE SAMPLES	1903 1705.3	ASTM C172 ACI 318 6.6	EA 150 CY ONE SET PER DAY MIN		OBTAIN WHEN FRESH CONCRETE IS PLACED FOR EACH MIX DESIGN USED
CONCRETE STRENGTH		ASTM C39	2 CYL – 7 DAYS 2 CYL – 28 DAYS		
CONCRETE SLUMP		ASTM C143	ONE TEST PER COMPOSITE SAMPLE		AT POINT OF PLACEMENT
CONCRETE AIR CONTENT		ASTM C231	ONE TEST PER COMPOSITE SAMPLE		MIN ONE PER DAY
CONCRETE TEMPERATURE		ASTM C1064	ONE TEST PER COMPOSITE SAMPLE		ONE TEST PER HOUR WHEN AIR TEMP IS BELOW 40 DEG F OR ABOVE 80 DEG F

TABLE 4 – REQUIRED STRUCTURAL TESTING FOR SEISMIC RESISTANCE

SYSTEM OR MATERIAL	TESTING			REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY	
STEEL				
RADIOGRAPHIC (RT) MAGNETIC PARTICLE (MT) AND ULTRASONIC (UT) TESTING OF WELDS	AISC 360 5.0	RT– AWS D1.1 6.16 MT– AWS D1.1 6.14.4 UT– AWS D1.1 6.13 & 6.14.3	PER DRAWINGS	ALL CJP WELDS REQUIRE UT TESTING
PRE–CONSTRUCTION TESTING OF WELDED STUDS	1705.2.2.1	AWS D1.1 7.7.1	EACH SIZE AND TYPE OF STUD EACH SHIFT	
MT OF K–AREA OF ROLLED WIDE FLANGE COLUMN WEBS ADJACENT TO DOUBLER/CONTINUITY PLATE WELDS	1705.12.2	AISC 341 J6.2A AWS D1.1 6.14.4	EACH PLATE LOCATION	
MAGNETIC PARTICLE (MT) AND ULTRASONIC (UT) TESTING OF COMPLETE JOINT PENETRATION GROOVE (CJP) WELDS IN MATERIALS 5/16" THICK AND GREATER		AISC 341 J6.2B MT – AWS D1.1 6.14.4 UT – AWS D1.1 6.13 & 6.14.3	UT 100% OF WELDS MT 25% OF WELDS	REFER TO DRAWINGS FOR LOCATIONS
UT OF BASE METAL THICKER THAN 1–1/2" SUBJECT TO THROUGH–THICKNESS WELD SHRINKAGE STRAINS		AISC 341 J6.2C AWS D1.1 6.13 & 6.14.3	BEHIND AND ADJACENT TO EACH WELD	

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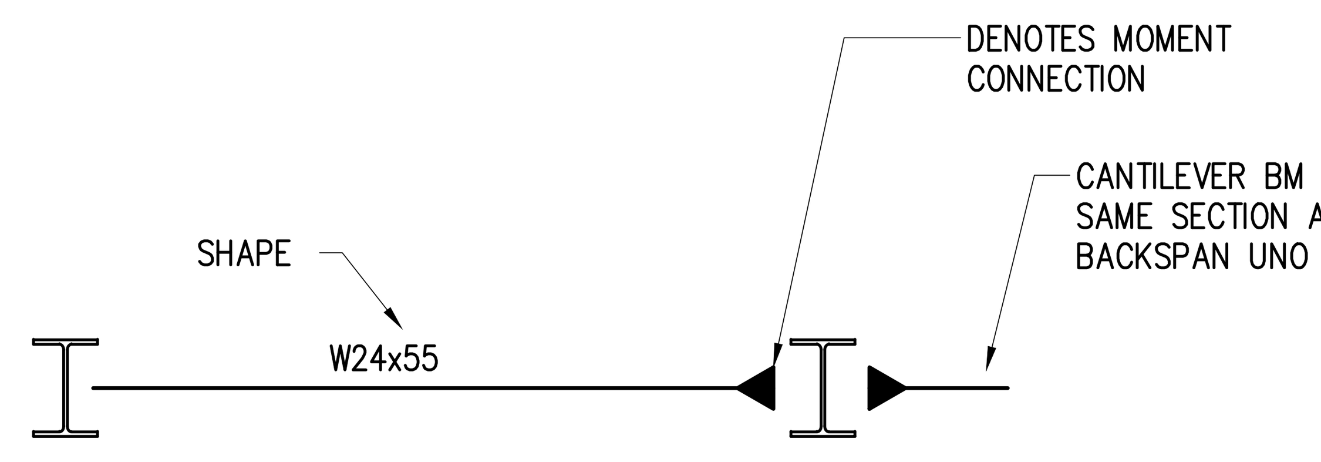
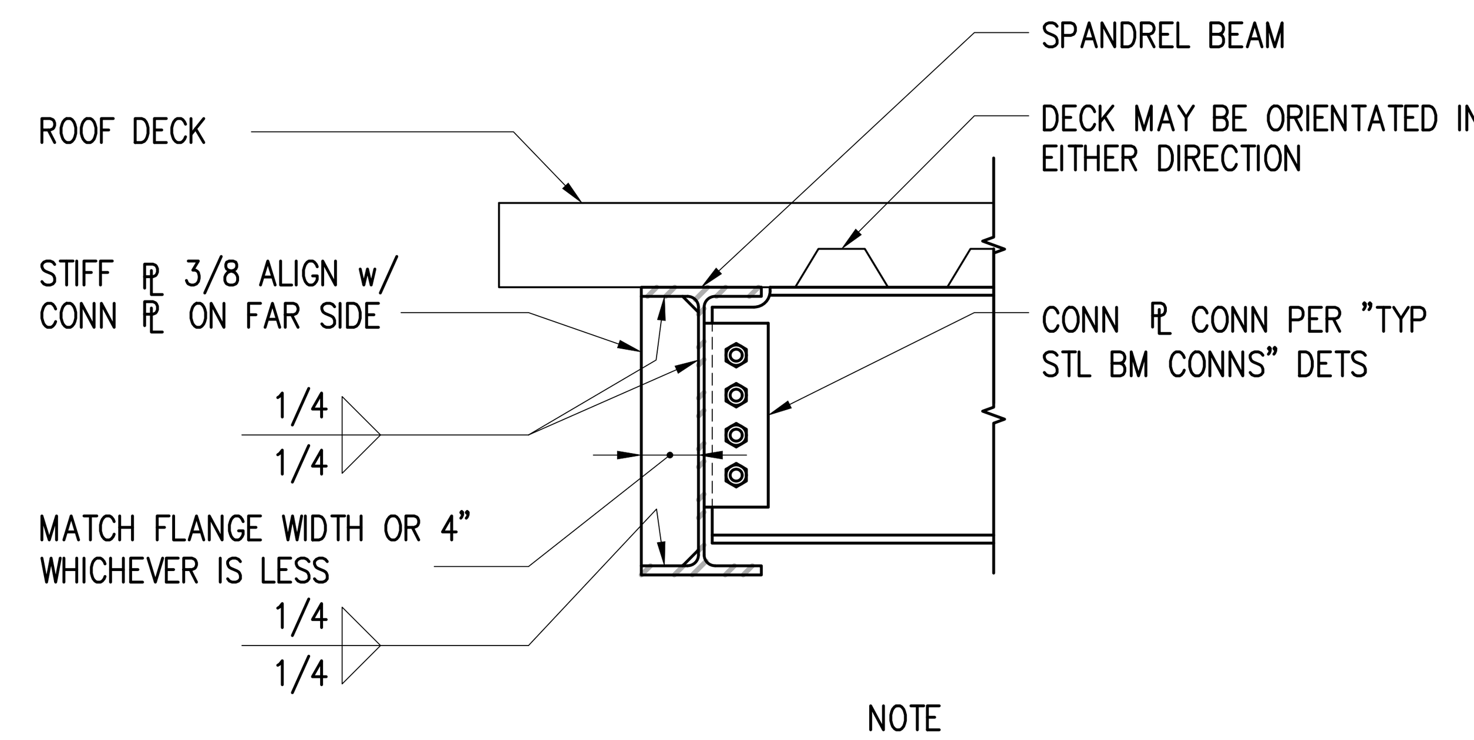


NOTE
SPACE STUDS PER TYP SHEAR STUD PLACEMENT DETAIL.

STEEL BEAM CALLOUTS
1 DETAIL
SCALE:1" = 1'-0"



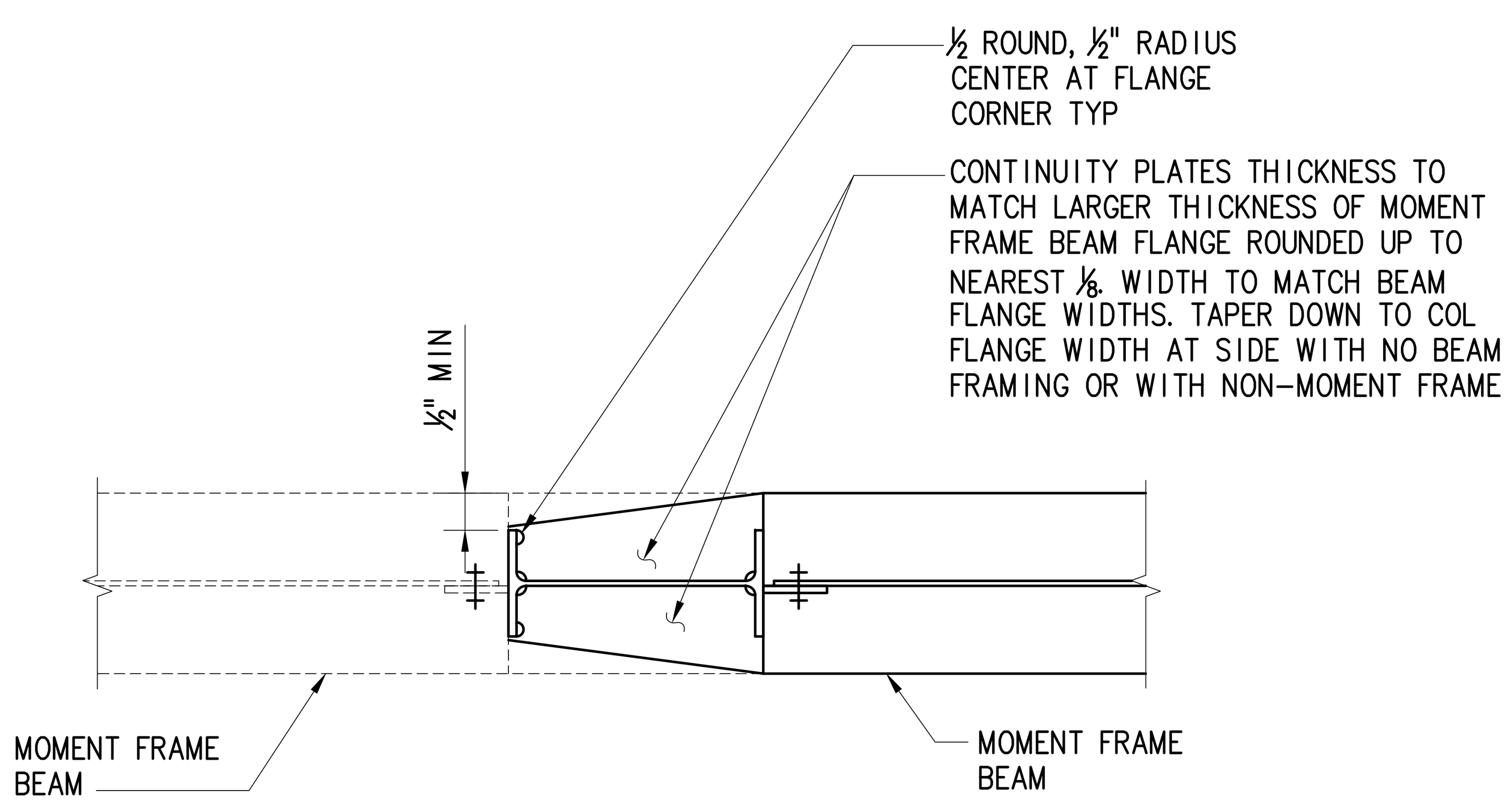
NOTE
DETAIL ALSO APPLIES AT ALL EDGE OF SLAB CONDITIONS.

SPANDREL BEAM STIFFENER
2 DETAIL
SCALE:NOT TO SCALE

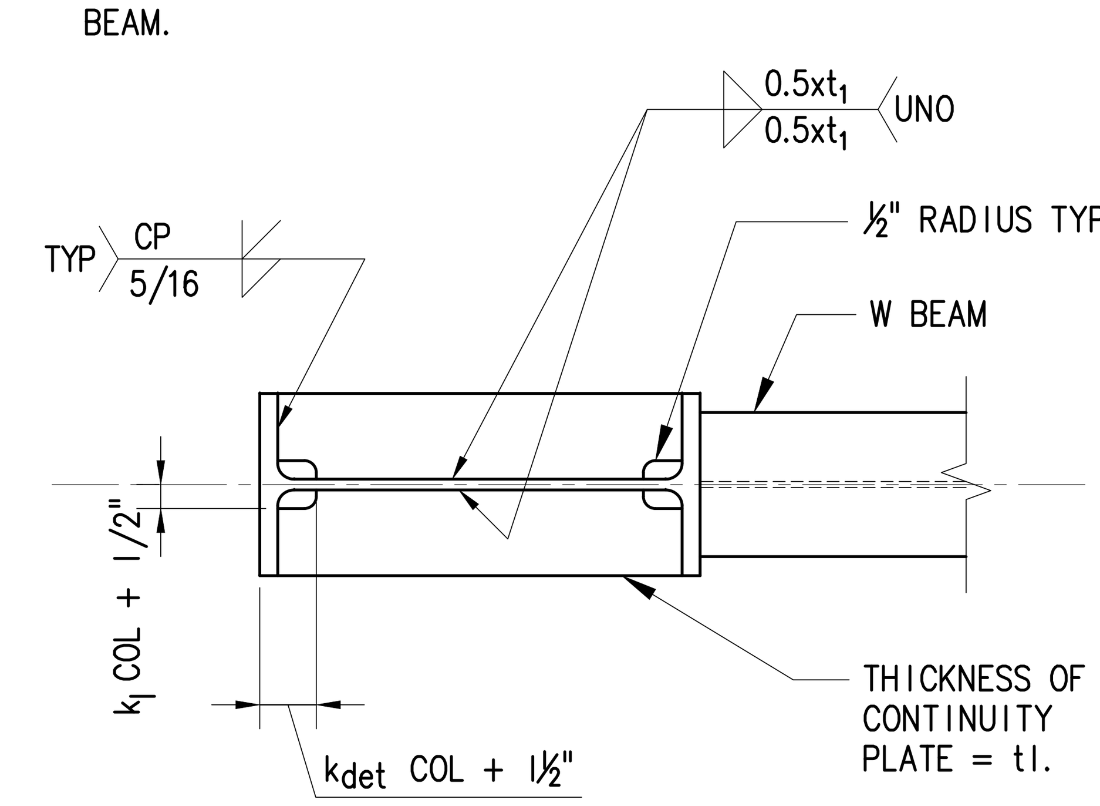
	SINGLE PLATE WITH ONE ROW BOLTED CONNECTION SCHEDULE						
	FULL CONNECTION				MINIMUM SHEAR TAB THICKNESS, t	FILLET WELD, w	
	NUMBER BOLTS	MAX ALLOW REACTION (KIPS)	MAX COPE LENGTH: TOP COPE ONLY	MAX COPE LENGTH: TOP & BOT COPE			
7/8"DIA A325X BOLTS: W10	2	12	6"	2 1/2"	5/16"	1/4"	
W12	3	25	4 1/2"	2 1/2"	5/16"	1/4"	
W14	3	25	4 1/2"	2 1/2"	5/16"	1/4"	
W16, W18	4	44	7"	4"	5/16"	1/4"	
W21	5	56	9"	5"	5/16"	1/4"	
W24	6	75	1'-1"	7"	3/8"	5/16"	
W27	7	83	1'-1"	10"	3/8"	5/16"	
W30	8	91	1'-1"	1'-1"	3/8"	5/16"	
W33	9	100	1'-1"	1'-1"	1/2"	3/8"	

NOTES

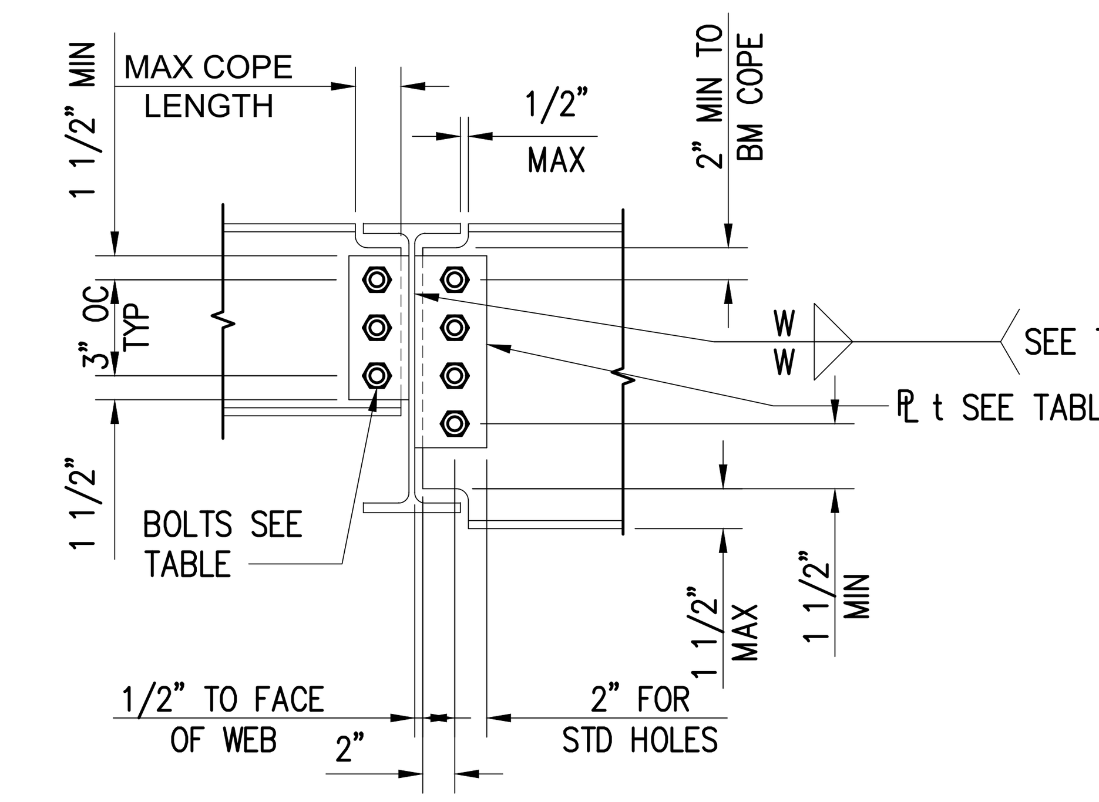
1. SEE PLANS FOR BEAM SIZE AND NOTES.
2. WHERE BEAMS ARE DENOTED WITH ASTERISK [*] ON PLAN, PROVIDE 1" DIA A490 BOLTS, 1/2" SHEAR TAB AND 3/8" FILLET WELDS.
3. SHEAR TABS SHALL HAVE HORIZONTAL SHORT SLOTTED HOLES (SSL) AND BEAM HAVE STANDARD ROUND HOLES UNLESS NOTED OTHERWISE.
4. FOR EXTERIOR SPANDREL BEAMS REFER TO "TYPICAL SPANDREL BEAM STIFFENER" DETAIL.
5. WHEN ACTUAL LENGTH OF COPE IS GREATER THAN ALLOWED IN TABLE, ONLY COPES ABOVE THE HEAVY LINES IN TABLE MAY BE INCREASED. THESE REQUIRE STRENGTH REDUCTION. REDUCED STRENGTH = ALLOW REACTION, MAX COPE LEGNTH/ACTUAL COPE LENGTH.
6. IF NEEDED COPE EXCEEDS LIMITS SET OUT ABOVE PROVIDE COPE WEB STIFFENER.
7. FOR AL COPES SEE "TYPICAL DETAILS FOR COPED BEAMS".
8. WHEN REACTION IS GREATER THAN THE MAXIMUM IN TABLES OR THE REQUIRED NUMBER OF BOLTS DOES NOT FIT WITHIN DEPTH OF BEAM, REFER TO SPECIFIC DETAILS.



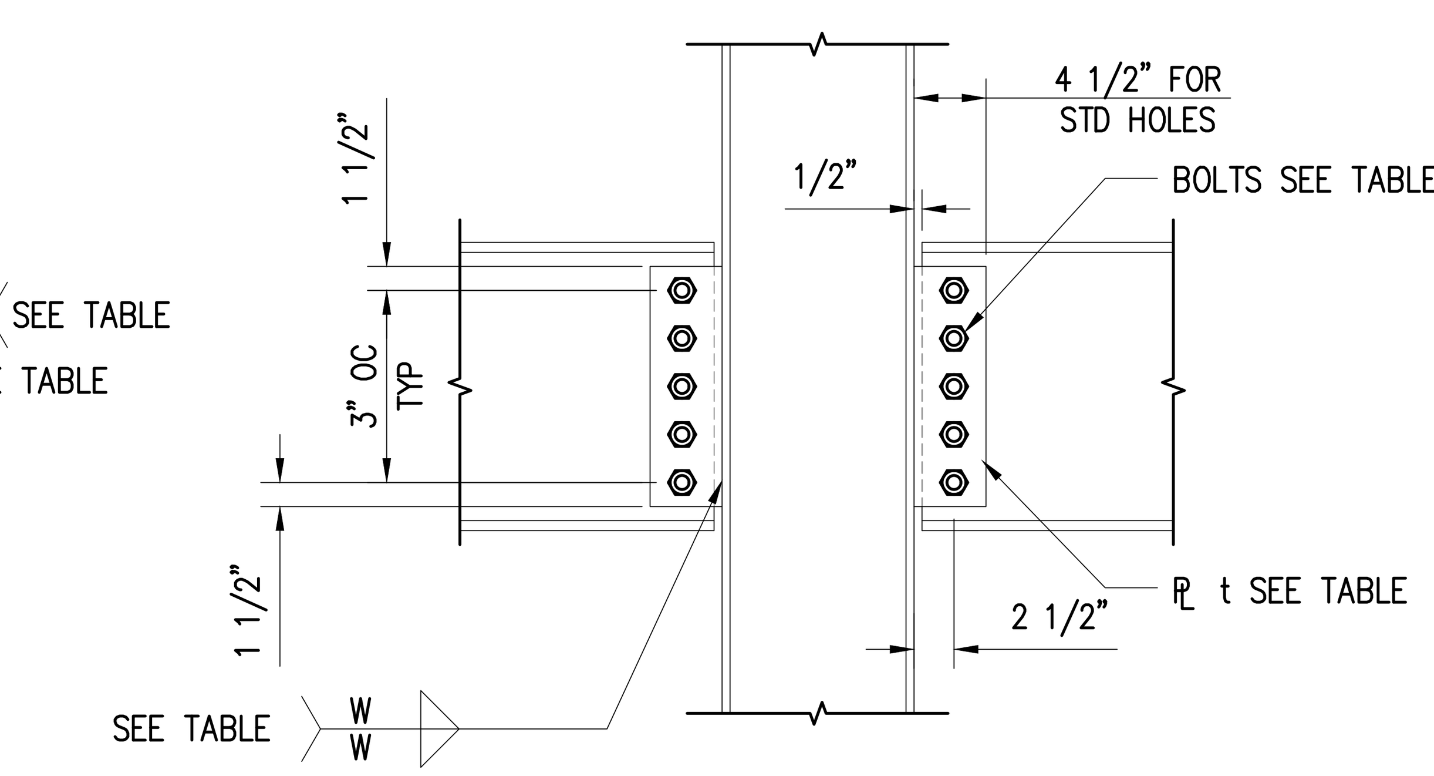
BOTTOM FLANGE
(WHERE COLUMN FLANGE IS NARROWER THAN BEAM)



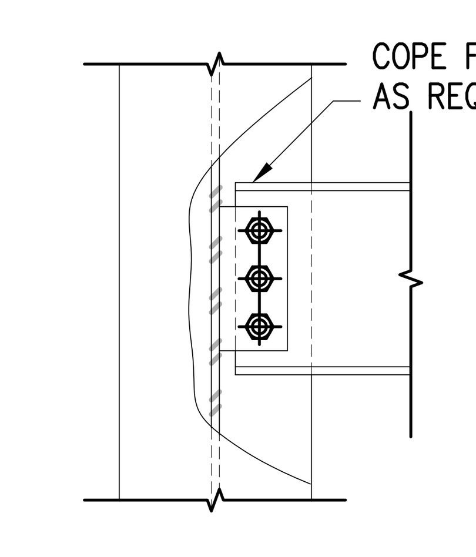
CONTINUITY PLATES
5 DETAIL
SCALE:NOT TO SCALE



TYP BOLTED BEAM TO BEAM CONN

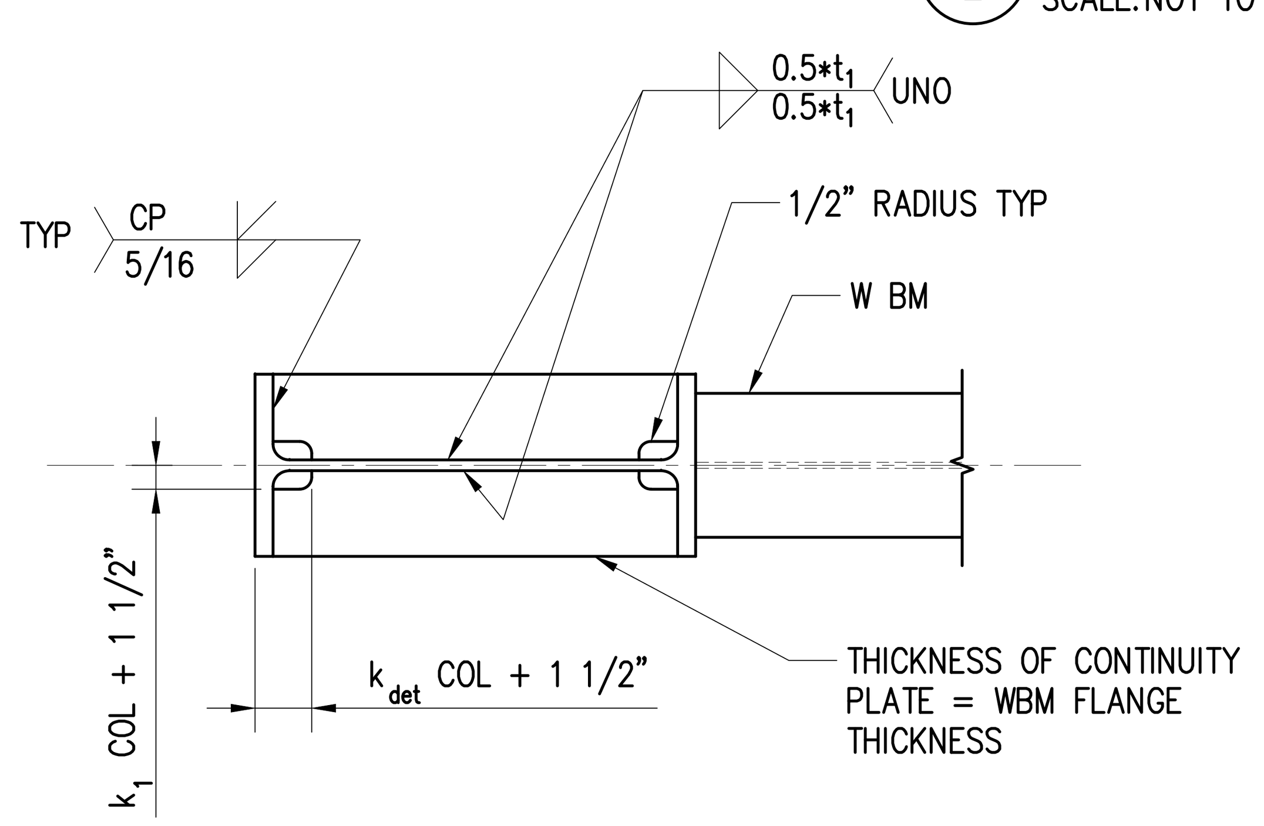


TYP GIRDER TO W COLUMN

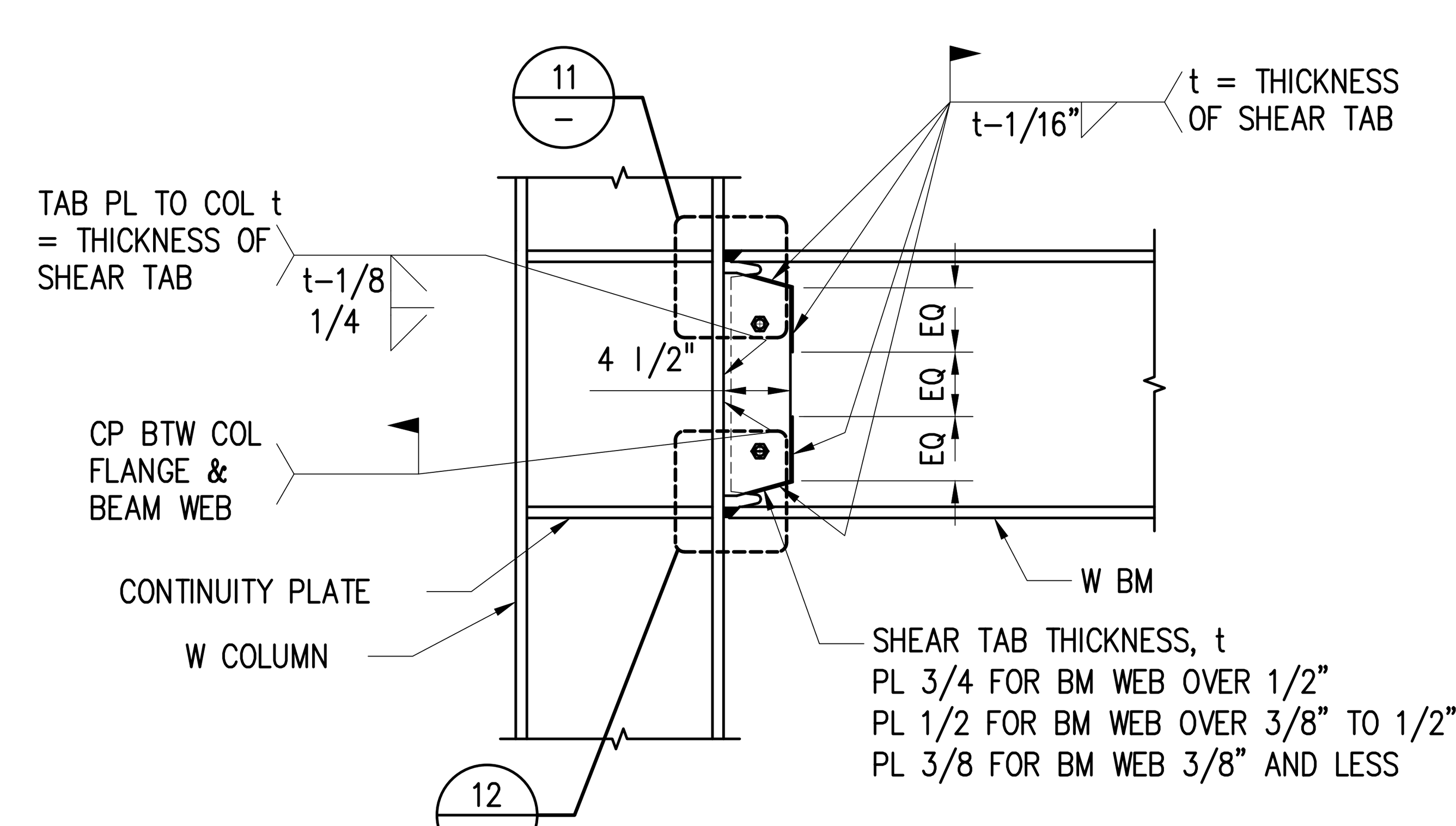


BEAM TO COL WEB

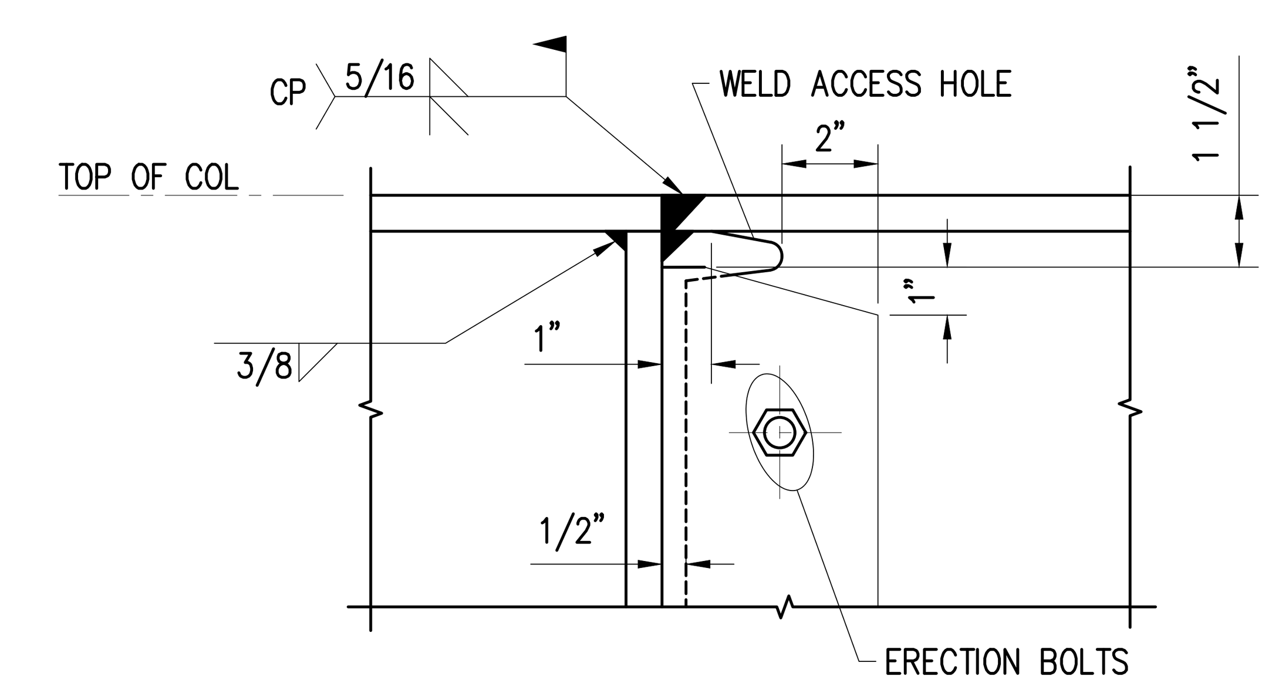
SINGLE ROW BOLTED CONNECTIONS
7 DETAIL
SCALE:1" = 1'-0"



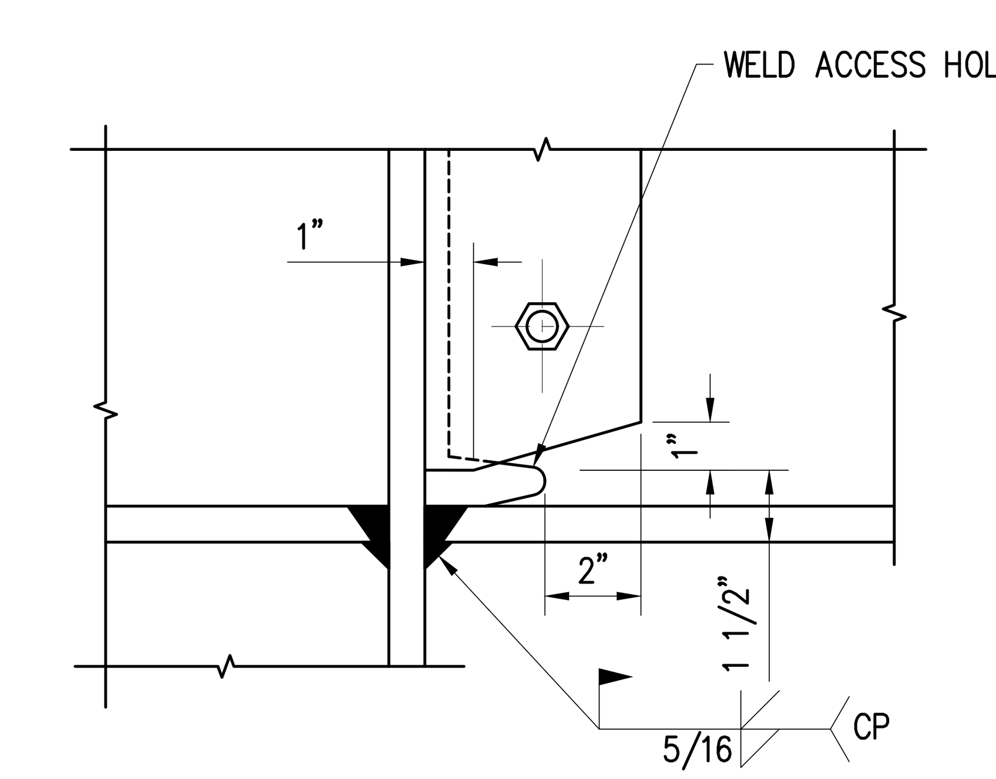
CONTINUITY PLATES
9 SECTION
SCALE:NOT TO SCALE



MOMENT CONNECTION W BEAM TO W COLUMN FLANGE
10 DETAIL
SCALE:1" = 1'-0"



TOP OF FLANGE
11 SECTION
SCALE:NOT TO SCALE



BOTTOM OF FLANGE
12 SECTION
SCALE:NOT TO SCALE

S5

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I IKEDA	SEPT 4 2014
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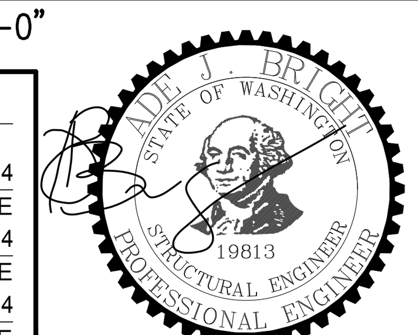

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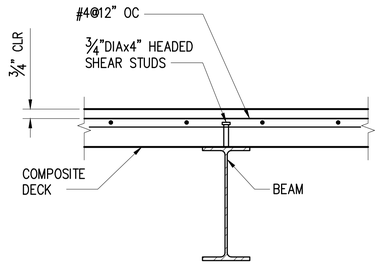
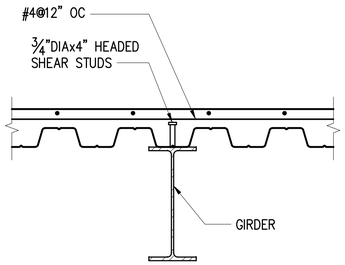
STRUCTURAL
TYPICAL STEEL
SECTIONS AND DETAILS

KPG PROJECT No. 13152 SHT 27 OF 55



COMPOSITE BEAM TO COMPOSITE DECK DETAIL

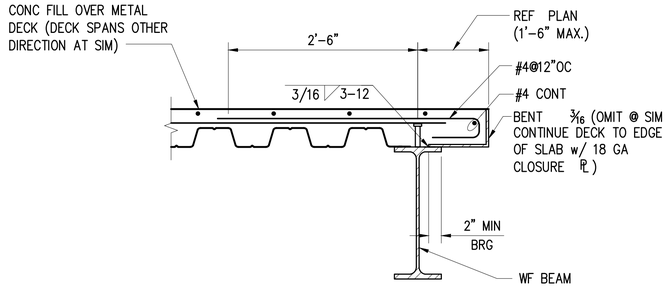
1 TYP — SCALE:NOT TO SCALE



NOTES:
DECK RIB VALLEY TO BE CENTERED OVER BEAM WHERE POSSIBLE OR DECK MUST SPLIT FULL LENGTH OF BEAM TO PROVIDE CONC HAUNCH w/ MIN WIDTH = RIB WIDTH.

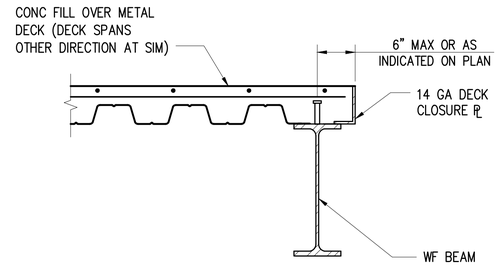
COMPOSITE GIRDER TO COMPOSITE DECK DETAIL

2 TYP — SCALE:NOT TO SCALE



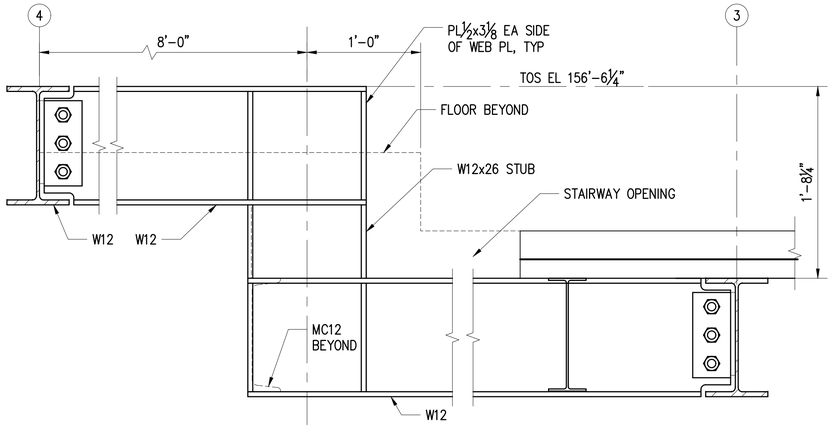
CANTILEVERED EDGE OF SLAB DETAIL

3 TYP — SCALE:NOT TO SCALE



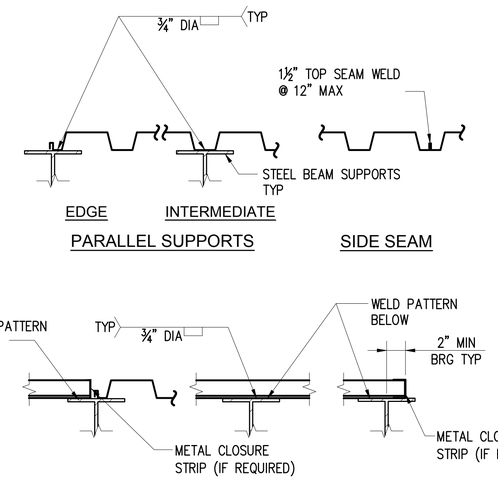
EDGE OF SLAB DETAIL

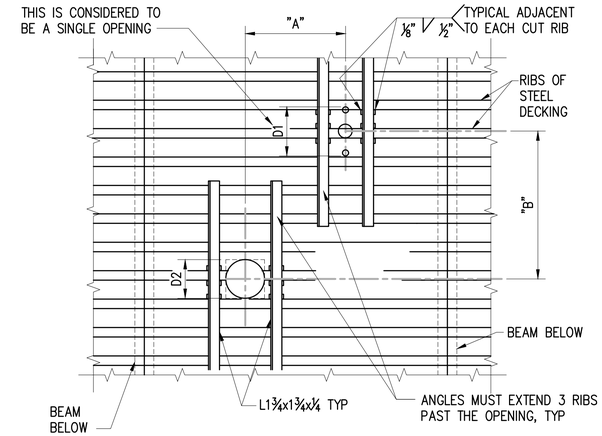
4 TYP — SCALE:NOT TO SCALE



BENT BEAM SECTION

A S102 — SCALE:1 1/2" = 1'-0"





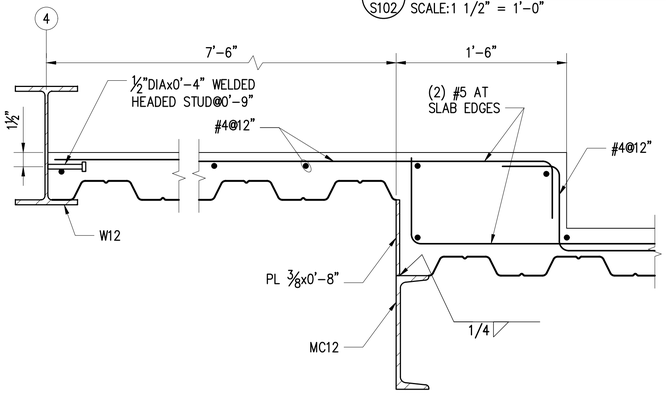
HOLES CUTTING NO MORE THAN:
3 ADJACENT RIBS FOR 6" AND 8" MODULE DECK,
2 ADJACENT RIBS FOR 12" MODULE DECK

NOTES:

1. ANGLES SHALL BE PLACED ON TOP OF DECK IF CONCRETE IS POURED OVER THE DECK, OTHERWISE ANGLES SHOULD BE PLACED UNDERSIDE OF DECK.
2. IF DIMENSION "A" IS GREATER THAN $4D_1$, $4D_2$, OR 2'-8" WHICHEVER IS LARGER, THEN THERE IS NO RESTRICTION ON DIMENSION "B".
3. IF DIMENSION "B" IS GREATER THAN $4D_1$, $4D_2$, OR 2'-8" WHICHEVER IS LARGER, THEN THERE IS NO RESTRICTION ON DIMENSION "A".
4. IF DIMENSIONS "A" AND "B" ARE LESS THAN $4D_1$, $4D_2$, OR 2'-8" WHICHEVER IS LARGER, THE OPENING GROUP WILL BE CONSIDERED AS A SINGLE HOLE, AND MUST BE REINFORCED AS REQUIRED FOR THE LARGER OPENING.
5. HOLES LESS THAN 6" IN DIAMETER AND CUTTING NO MORE THAN ONE RIB NEED NO REINFORCING.
6. SMALL OPENINGS SHOULD BE BLOCKED OUT AND FORMLOK LEFT INTACT. AFTER THE CONCRETE HAS CURED, THE BLOCKOUT CAN BE REMOVED AND THE STEEL DECK IN THE AREA OF THE HOLE REMOVED.

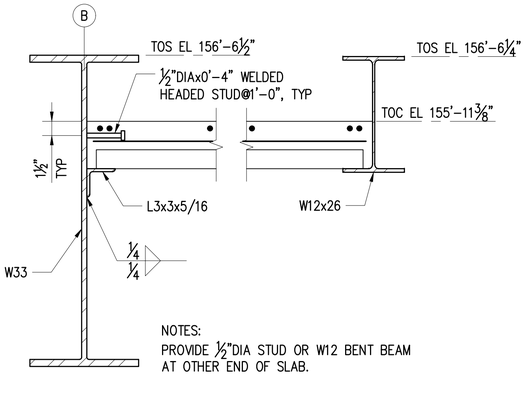
STEEL DECK REINFORCEMENT FOR SMALL OPENING DETAIL

12 TYP — SCALE:1" = 1'-0"



B SECTION

B S102 — SCALE:1 1/2" = 1'-0"



NOTES:
PROVIDE ½"DIA STUD OR W12 BENT BEAM AT OTHER END OF SLAB.

C SECTION

C S102 — SCALE:1 1/2" = 1'-0"

STEEL ROOF DECK DETAIL

11 TYP — SCALE:1 1/2" = 1'-0"

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1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

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S6.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
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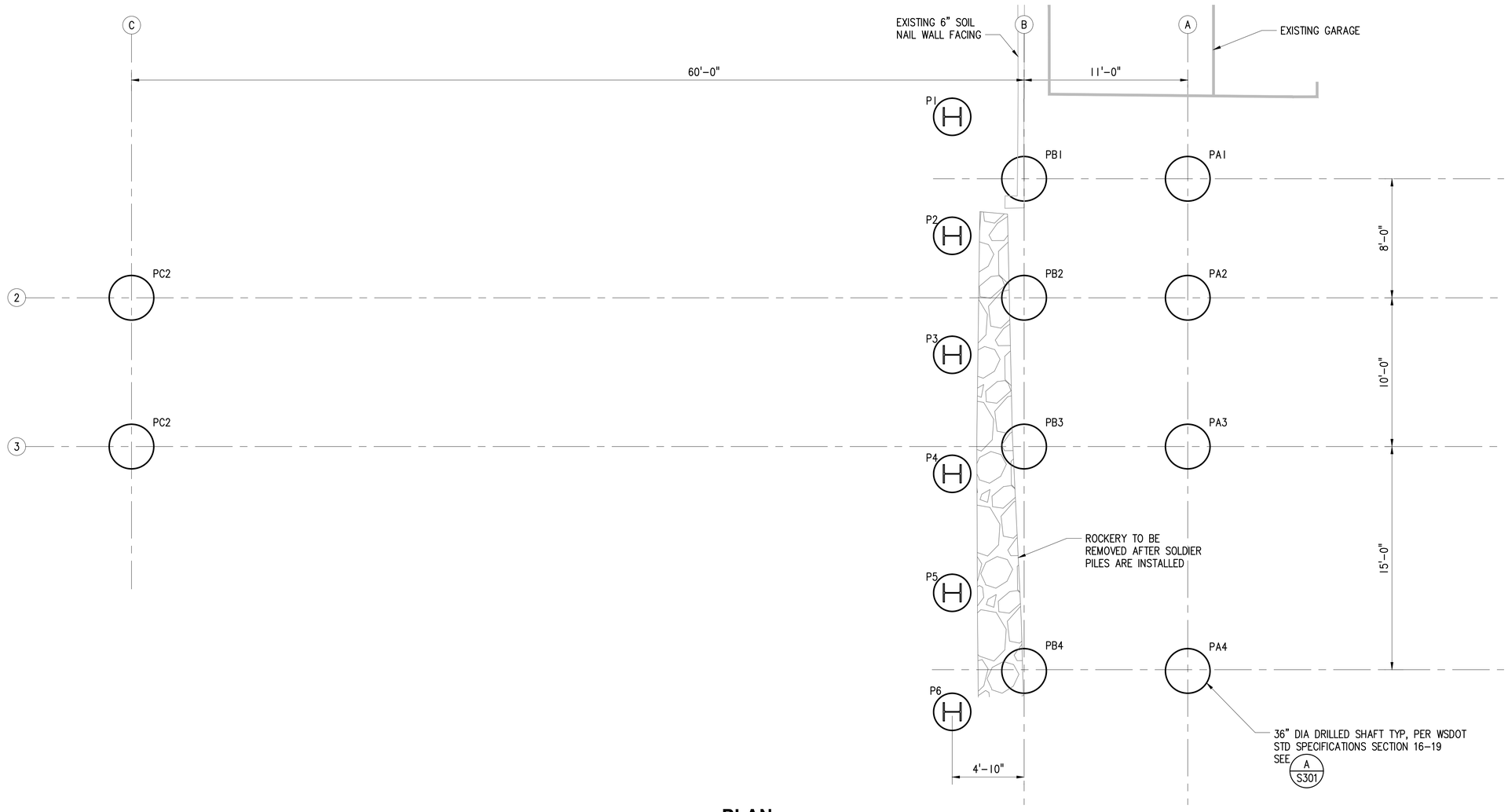

PLAN

SCALE:1/4" = 1'-0"

1/4"=1'-0" Scale 2 0 2 4 6 8 10 Feet

S100

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ENGINEERING MANAGER DATE

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PROJECT ENGINEER DATE

S100.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
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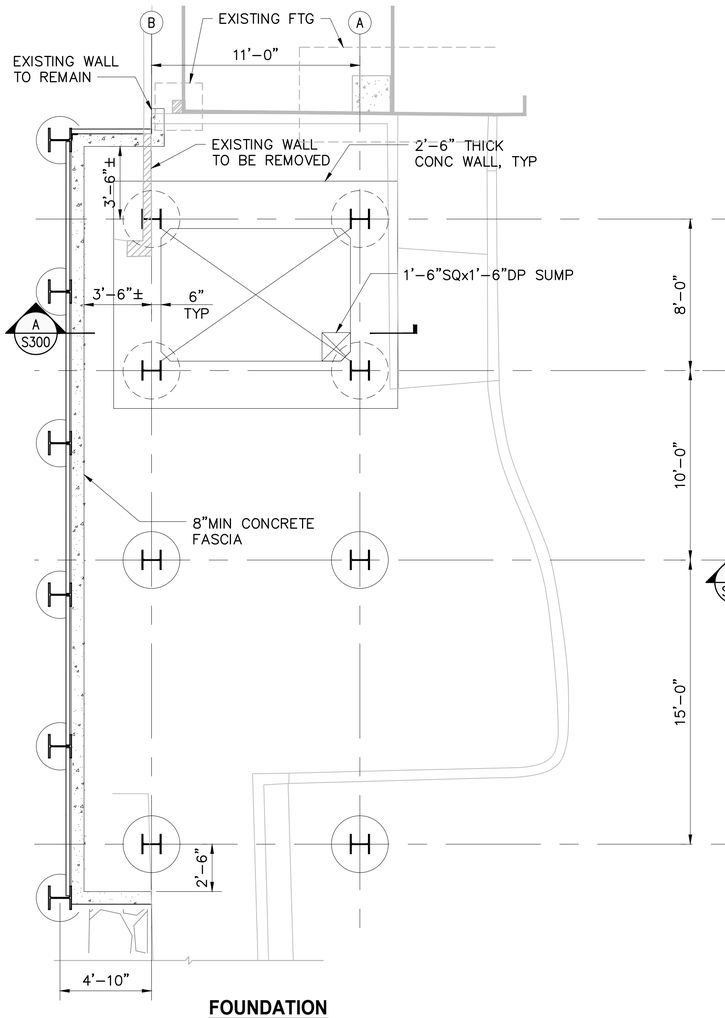
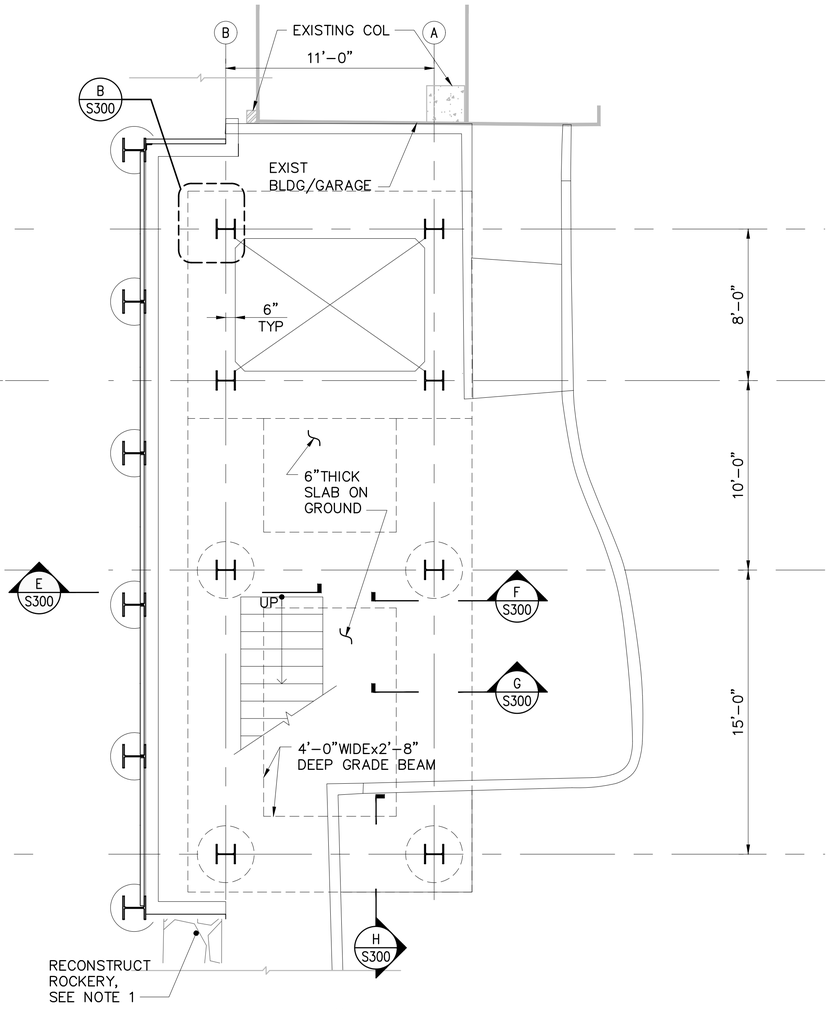


FOUNDATION

PLAN

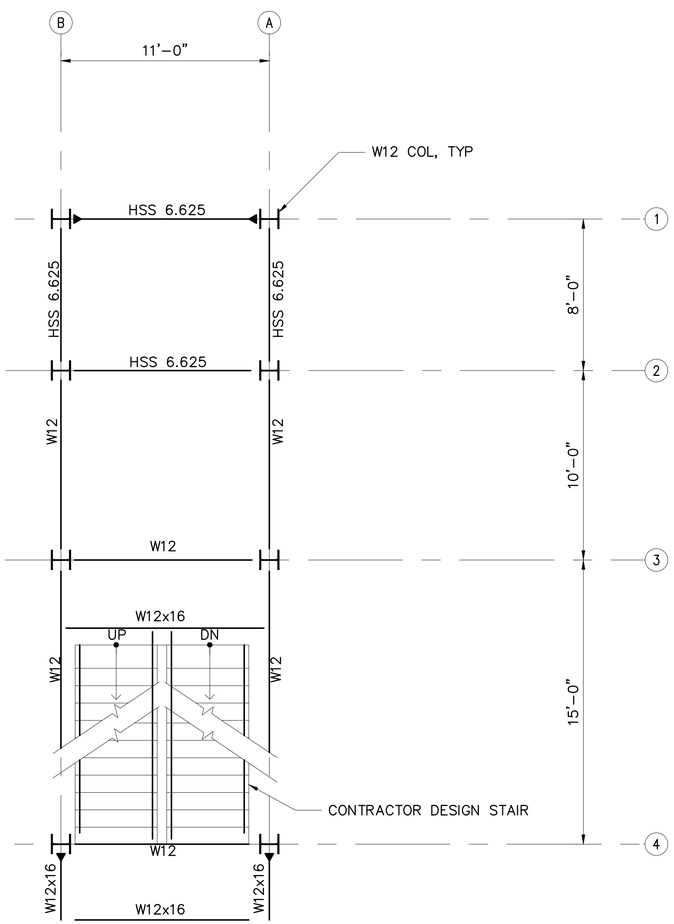
SCALE:1/4" = 1'-0"



LEVEL 1

PLAN

SCALE:1/4" = 1'-0"



INTERMEDIATE LEVELS

PLAN

SCALE:1/4" = 1'-0"

NOTES:

1. EXTEND ROCKERY A MINIMUM OF 2'-0" BEHINID SOLDIER PILE WALL. INSTALL CHINKING MATERIAL 2" TO 4" SHOT ROCK TO PREVENT FINES FROM ERODING OUT FROM BEHIND THE CONTACT BETWEEN THE SOLDIER PILE WALL AND THE ROCKERY.

1/4"=1'-0" Scale 2 0 2 4 6 8 10 Feet

S101

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

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ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S101.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
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JOHN J. BRIGHT — STATE OF WASHINGTON — 19813 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
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STRUCTURAL
FOUNDATION, LEVEL 1 AND INTERMEDIATE LEVELS
PLAN

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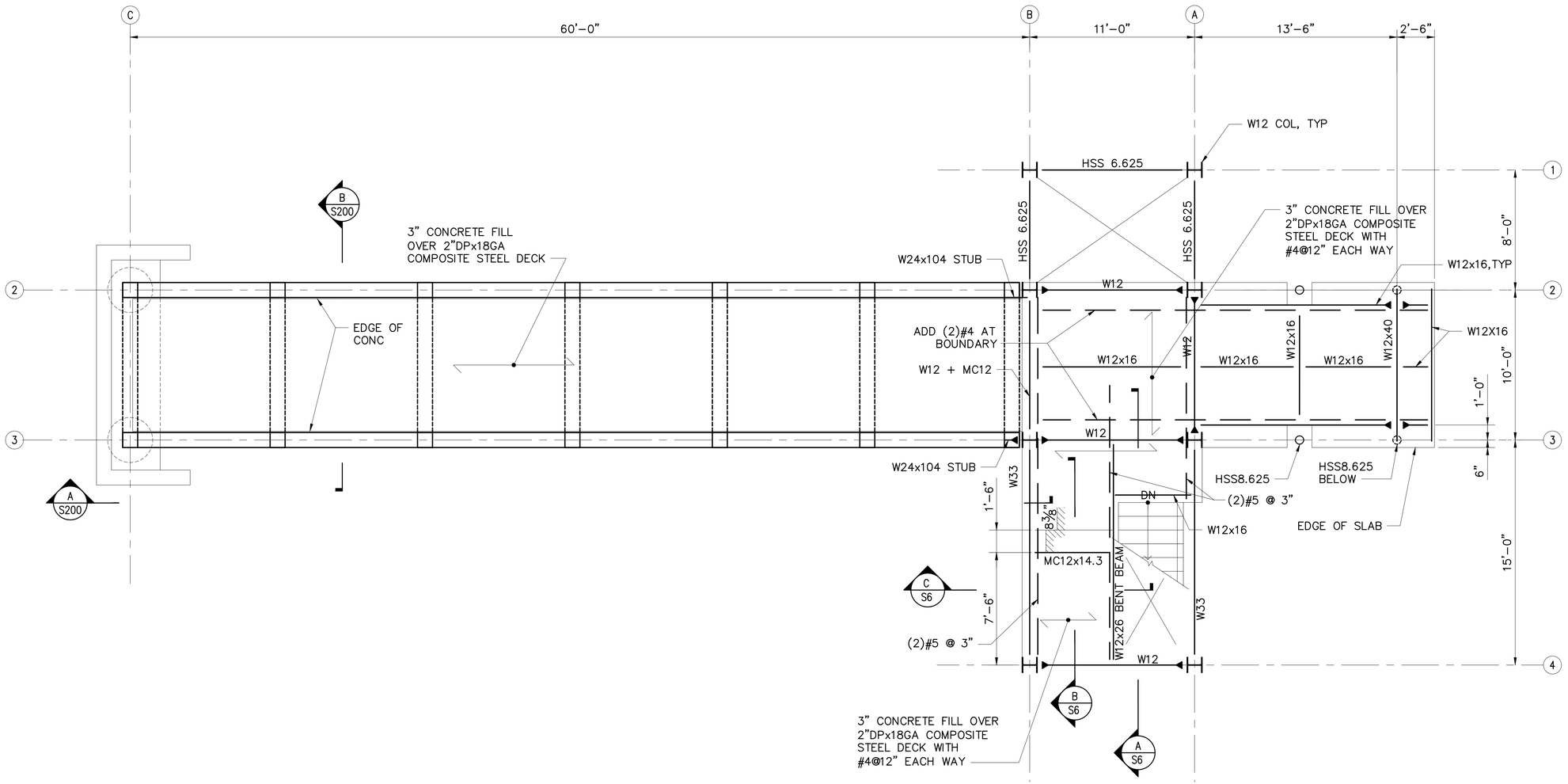

LEVEL 2
PLAN
SCALE:1/4" = 1'-0"

1/4"=1'-0" Scale 2 0 2 4 6 8 10 Feet

S102

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

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ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S102.dwg FILENAME

I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
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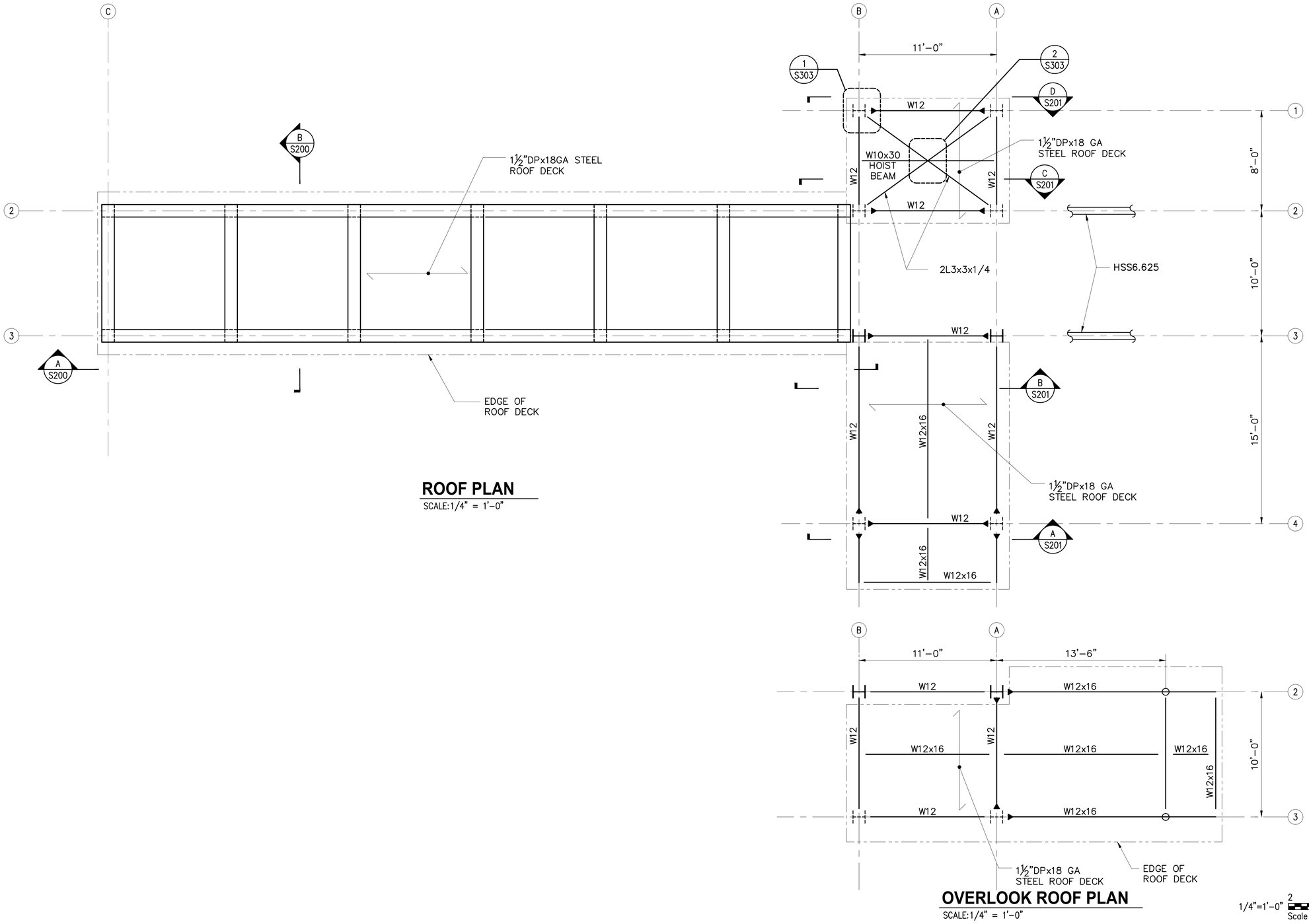
LEVEL 2
PLAN

KPG PROJECT No.

SHT 31 OF 55

T:\138 Series - KPG\138.34 Kirkland Park and Ride_CKC Connection\138.34 - Kirkland Park and Ride_CKC Connection\Drawings\S102.dwg 4/17/2017 1:47 PM



ROOF PLAN

SCALE:1/4" = 1'-0"

OVERLOOK ROOF PLAN

SCALE:1/4" = 1'-0"

1/4"=1'-0" Scale 2 0 2 4 6 8 10 Feet

S103

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S103.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

ANDREW L. BRIGHT STATE OF WASHINGTON 19813 STRUCTURAL ENGINEER PROFESSIONAL ENGINEER
05/06/2016

BRIGHT ENGINEERING, INC.
STRUCTURAL & CIVIL ENGINEERING
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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL ROOF PLANS

KPG PROJECT No.

SHT 32 OF 55

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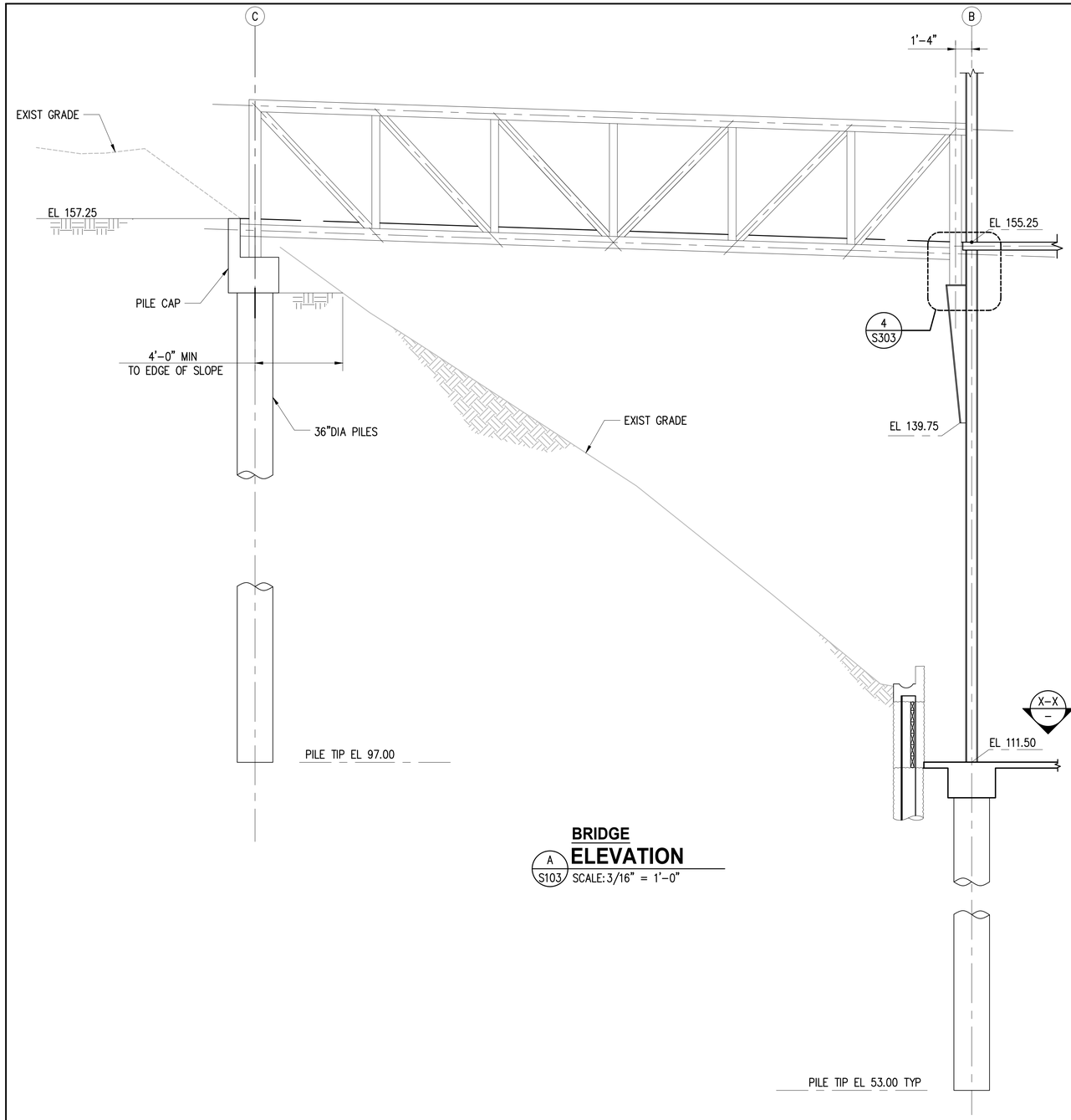
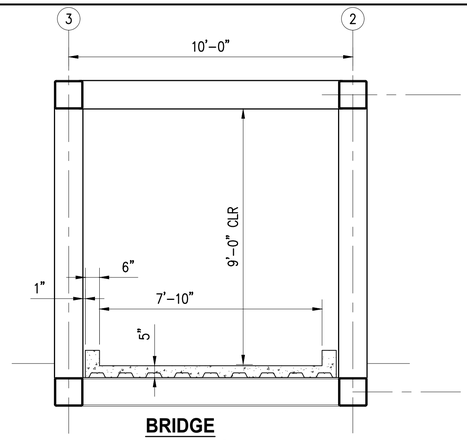
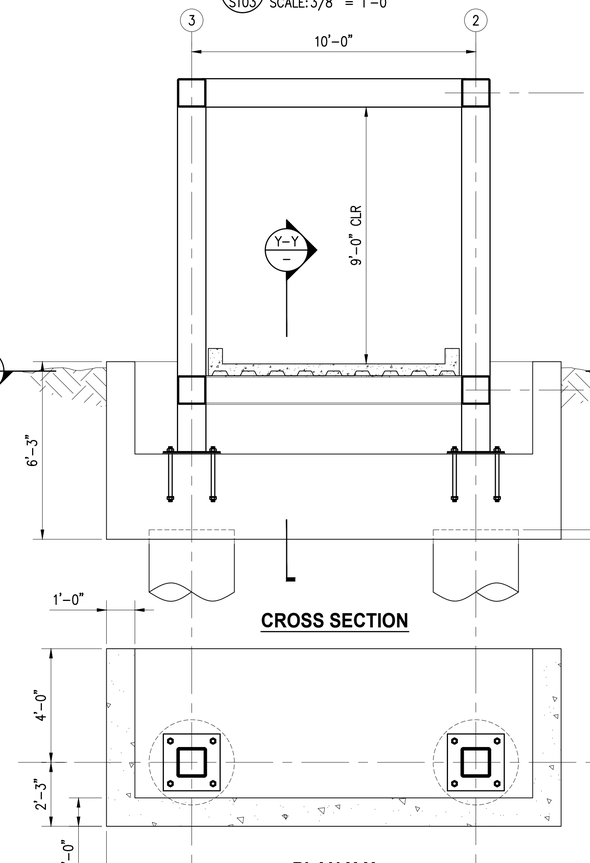


BRIDGE ELEVATION
A / S103 SCALE: 3/16" = 1'-0"

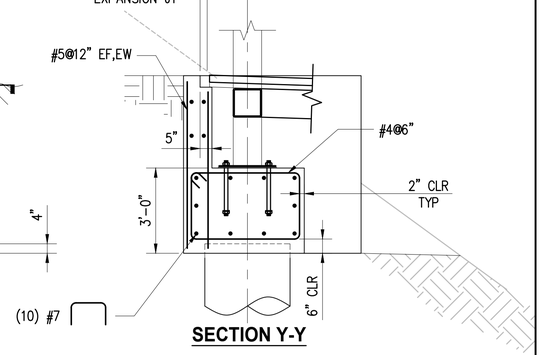


BRIDGE SECTION
B / S103 SCALE: 3/8" = 1'-0"



CROSS SECTION

PLAN X-X



SECTION Y-Y

DETAIL
1 / S103 SCALE: 3/8" = 1'-0"

NOTES AND DESIGN CRITERIA:

1. FOR DESIGN CODES AND DESIGN LOADS, SEE STRUCTURAL GENERAL NOTES.
2. DEFLECTION LIMITS:
   A. LIVE LOAD L/800 MAX
   B. NATURAL FREQUENCY (WITHOUT LIVE LOAD) 3.0 Hz MIN
3. DESIGN REQUIREMENTS
   A. DESIGN SHALL BE BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON.
   B. BEARING SUPPORT STIFFNESS SHALL BE INCORPORATED IN THE ANALYSIS AND DESIGN OF THE BRIDGE. SUPPORT STIFFNESS WILL BE PROVIDED BY ENGINEER OF RECORD (EOR).
   C. BRIDGE LATERAL SUPPORT AT GRIDLINE B SHALL BE RESTRAINED IN THE LONGITUDINAL AND TRANSVERSE DIRECTIONS, AND AT GRID C RESTRAINED IN THE TRANSVERSE DIRECTION ONLY.
   D. BRIDGE SUPPORT GEOMETRY AND REACTIONS SHALL BE SUBMITTED TO THE EOR FOR THE SUBSEQUENT DESIGN CHECK OF THE STEEL FRAME AND FOUNDATION.
4. SUBMITTALS
   SUBMIT CONCEPTUAL DESIGN TO THE ENGINEER OF RECORD AND RECEIVED SATISFACTORY REVIEW PRIOR TO FINAL DESIGN. SUBMIT SEALED FINAL DESIGN CALCULATIONS AND DRAWINGS TO THE ENGINEER OF RECORD AND RECEIVE SATISFACTORY REVIEW PRIOR TO FABRICATION.
5. REFER TO THE SPECIFICATIONS FOR OTHER INFORMATION AND REQUIREMENTS NOT SHOWN.

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S200.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

STATE OF WASHINGTON · 19813 · REGISTERED PROFESSIONAL ENGINEER · 05/06/2016

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

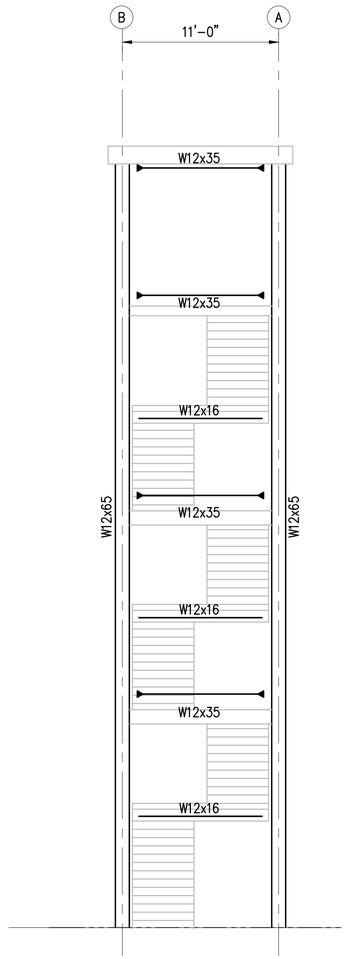
STRUCTURAL
PEDESTRIAN BRIDGE
ELEVATION, CROSS SECTIONS & DETAILS

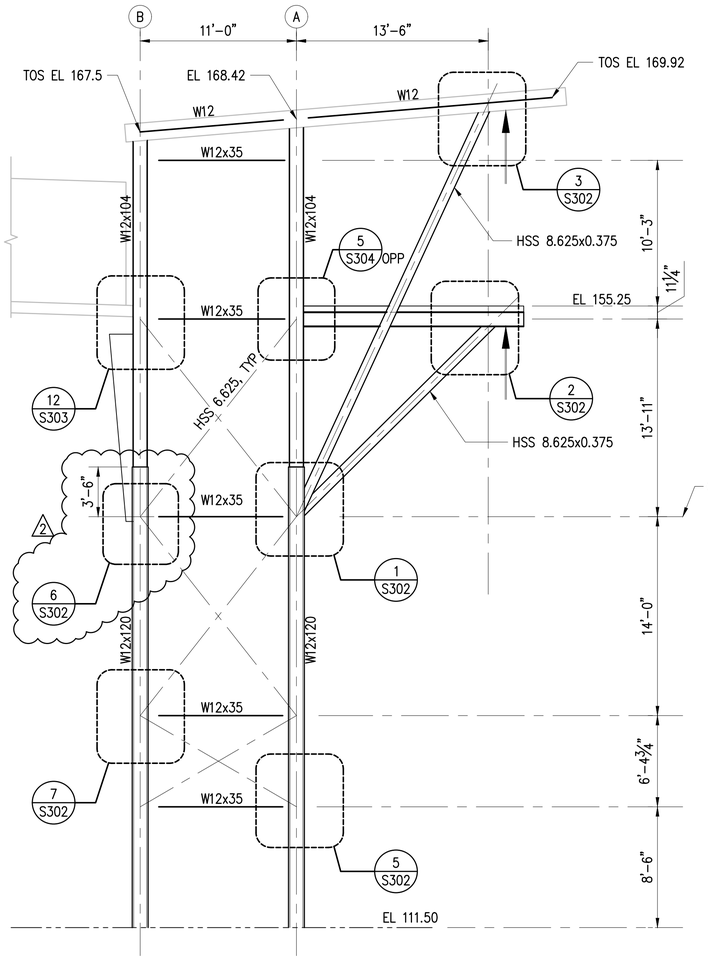
KPG PROJECT No.

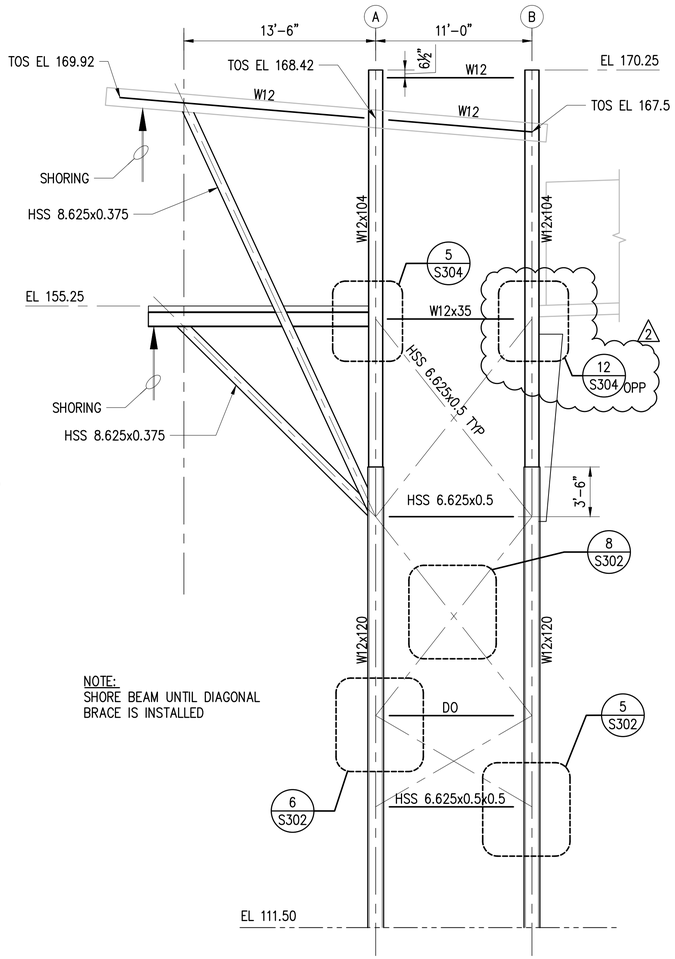
S200

SHT 33 OF 55

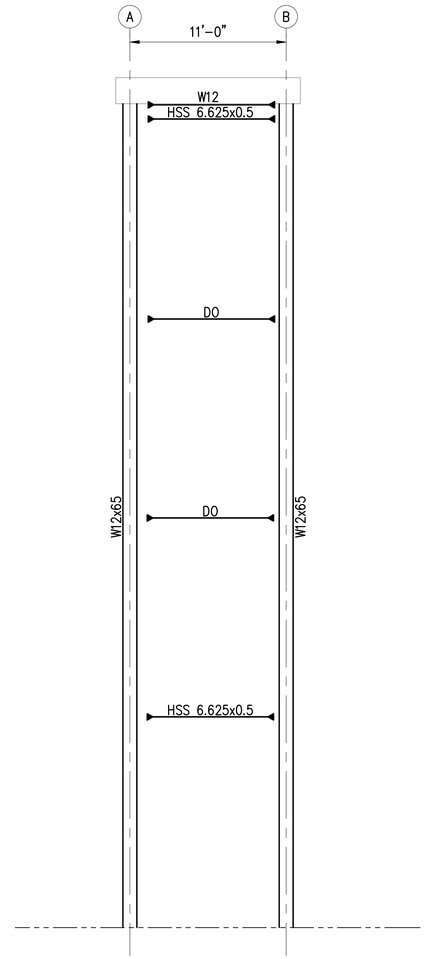
T:\138 Series - KPG\138.34 Kirkland Park and Ride_CKC Connection\138.34 - Kirkland Park and Ride_CKC Connection\Drawings\Structural\S200.dwg 4/17/2017 1:48 PM







NOTE:
SHORE BEAM UNTIL DIAGONAL BRACE IS INSTALLED



STAIR (ALONG GRID 4)
A / S103 NORTH ELEVATION
SCALE: 3/16" = 1'-0"

ALONG GRID 3
B / S103 NORTH ELEVATION
SCALE: 3/16" = 1'-0"

ALONG GRID 2
C / S103 SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

ELEVATOR (ALONG GRID 1)
D / S103 SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS
2	04/17/17	AB		RESPONSE TO BUILDING DEPARTMENT COMMENTS NO. 2

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S201.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
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A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

JOHN J. BRIGHT — STATE OF WASHINGTON — 19813 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER
05/06/2016

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

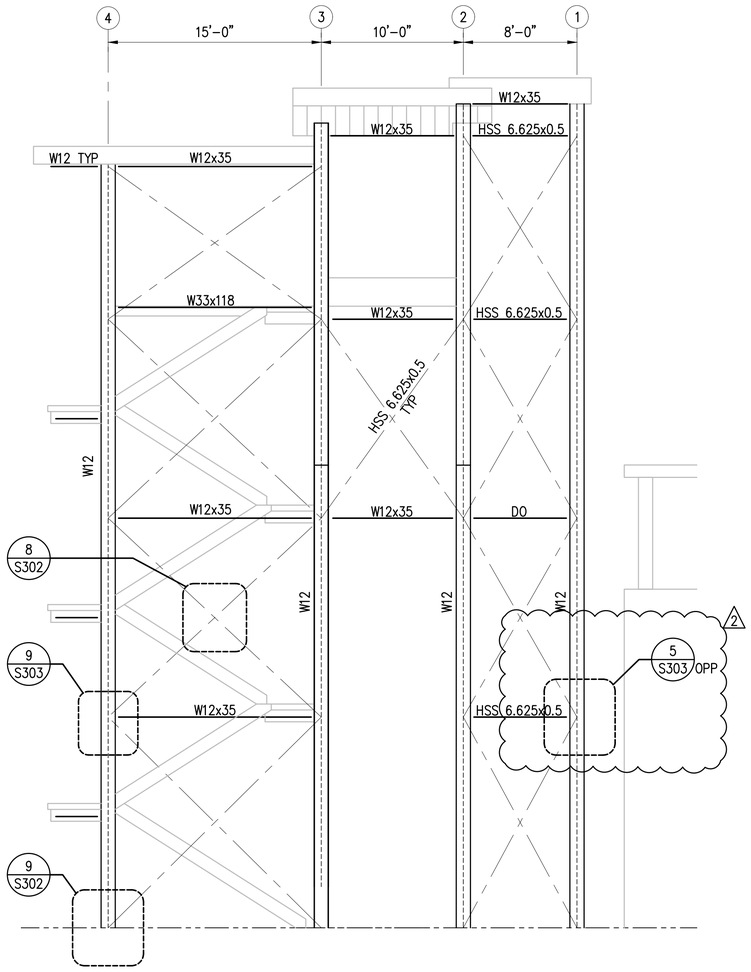
STRUCTURAL
STAIR AND ELEVATOR TOWER ELEVATIONS

KPG PROJECT No.

S201

SHT 34 OF 55

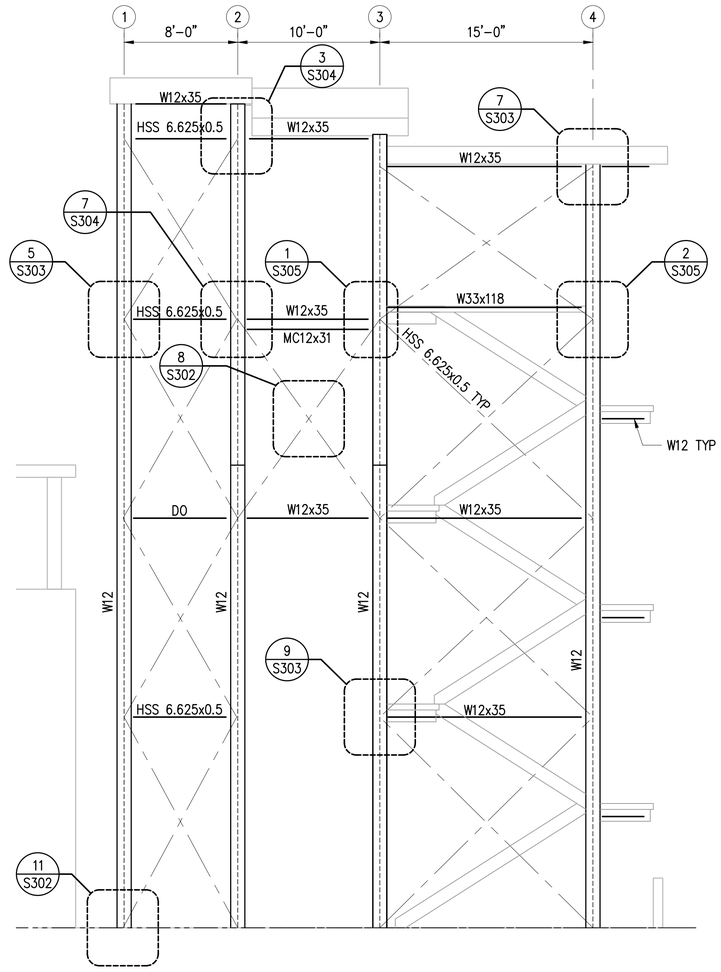
T:\138 Series – KPG\138.34 Kirkland Park and Ride_CKC Connection\138.34 – Kirkland Park and Ride_CKC Connection\Drawings\Structural\S201.dwg 4/17/2017 1:48 PM



STAIR AND ELEVATOR (ALONG GRID A)

A / S103 WEST ELEVATION

SCALE: 3/16" = 1'-0"



STAIR AND ELEVATOR (ALONG GRID B)

B / — EAST ELEVATION

SCALE: 3/16" = 1'-0"

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS
2	04/17/17	AB		RESPONSE TO BUILDING DEPARTMENT COMMENTS NO. 2

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S202.dwg

FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

ANDREW J. BRIGHT — STATE OF WASHINGTON — 19813 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER

05/06/2016

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CITY OF KIRKLAND WASHINGTON

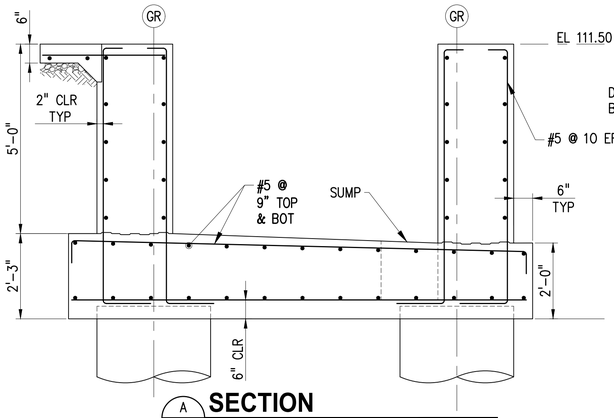
CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL
STAIR AND ELEVATOR TOWER
ELEVATIONS

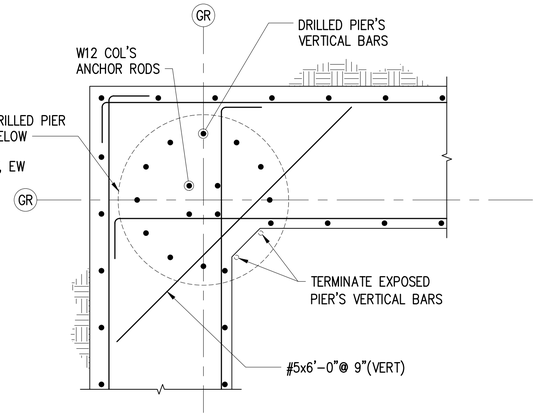
KPG PROJECT No.

S202

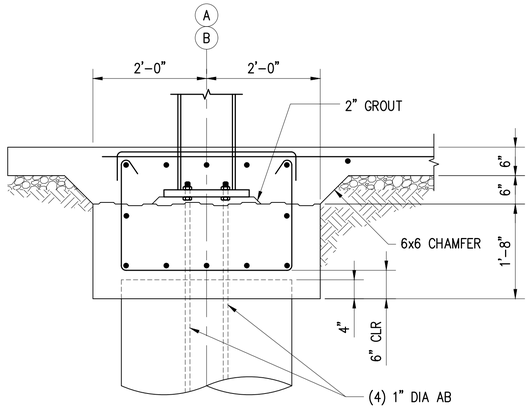
SHT 35 OF 55



A S101 **SECTION**
SCALE: 1/2" = 1'-0"



B S101 **SECTION**
SCALE: 3/4" = 1'-0"



E S101 **SECTION**
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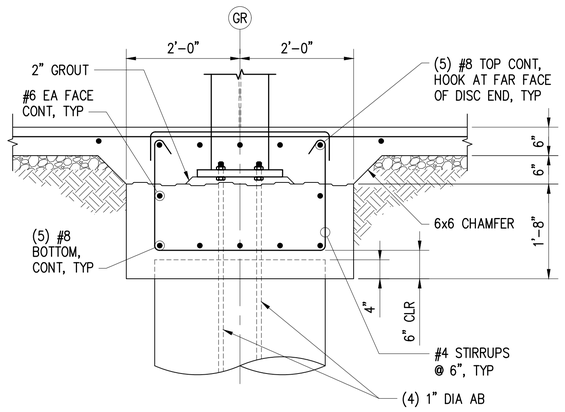
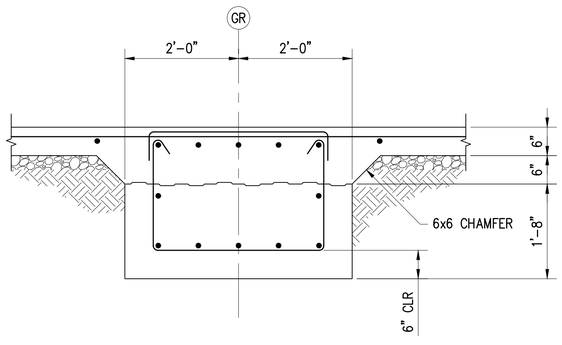
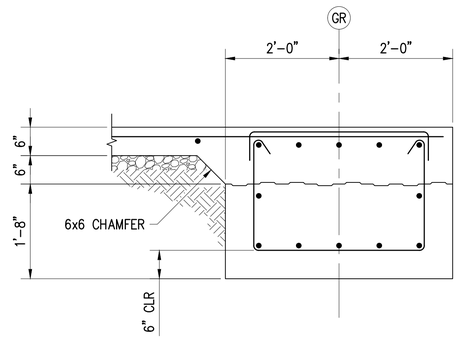


F S101 **SECTION**
SCALE: 3/4" = 1'-0"



G S101 **SECTION**
SCALE: 3/4" = 1'-0"



H S101 **SECTION**
SCALE: 3/4" = 1'-0"

S300

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S300.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

STATE OF WASHINGTON · ANDREW L. BRIGHT · 19813 · REGISTERED PROFESSIONAL ENGINEER
05/06/2016

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL CONCRETE FOUNDATION SECTIONS AND DETAILS

KPG PROJECT No. 13152 | SHT 36 OF 55

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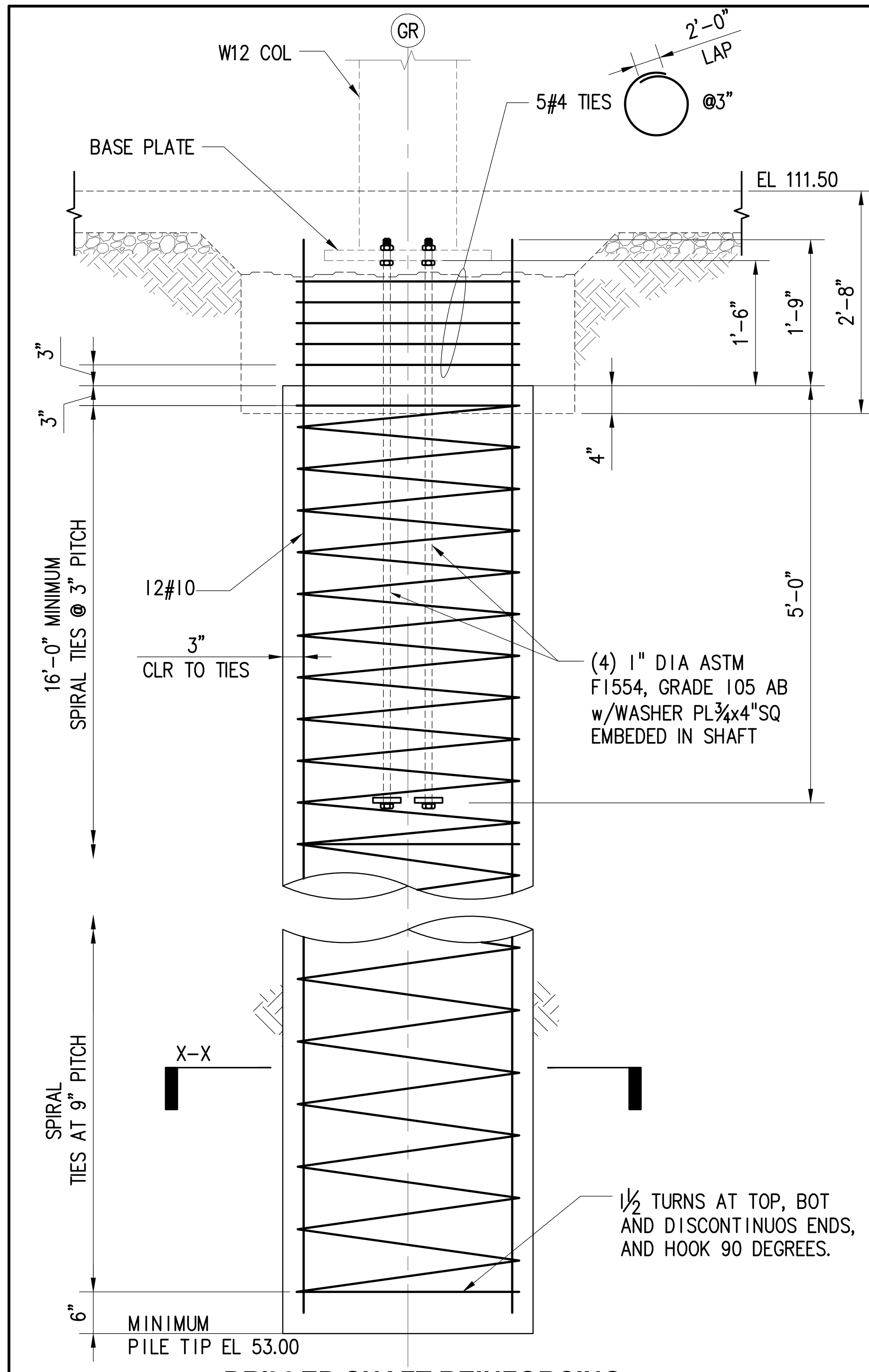
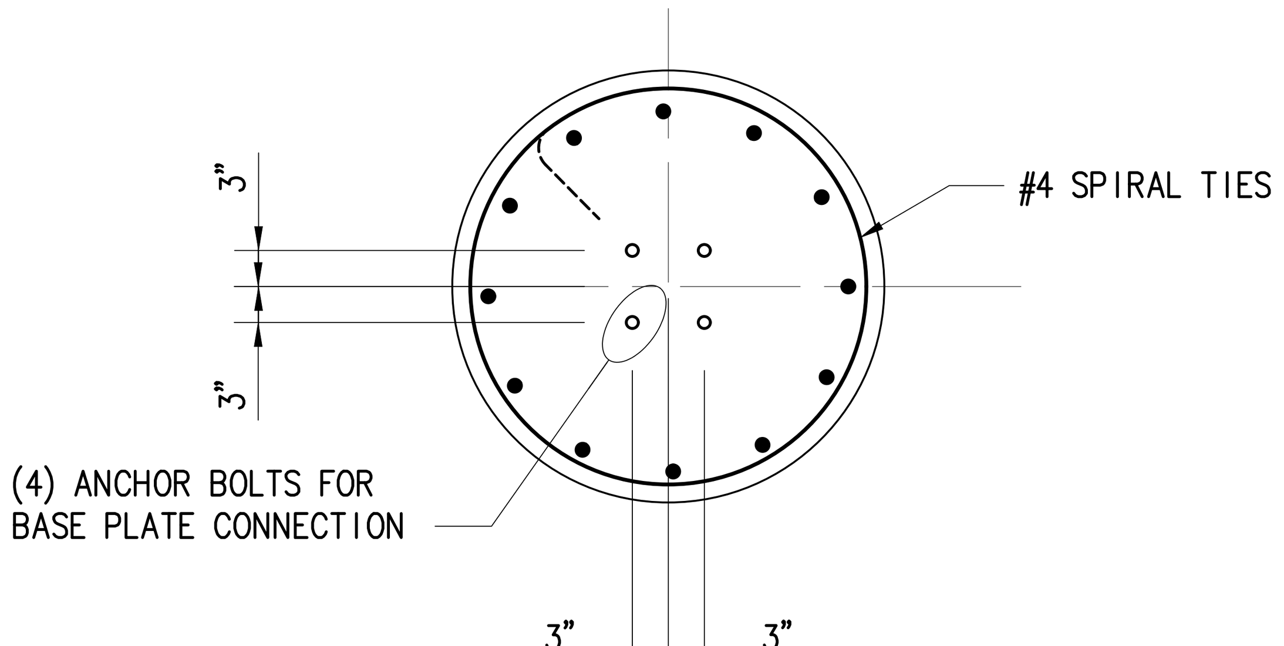
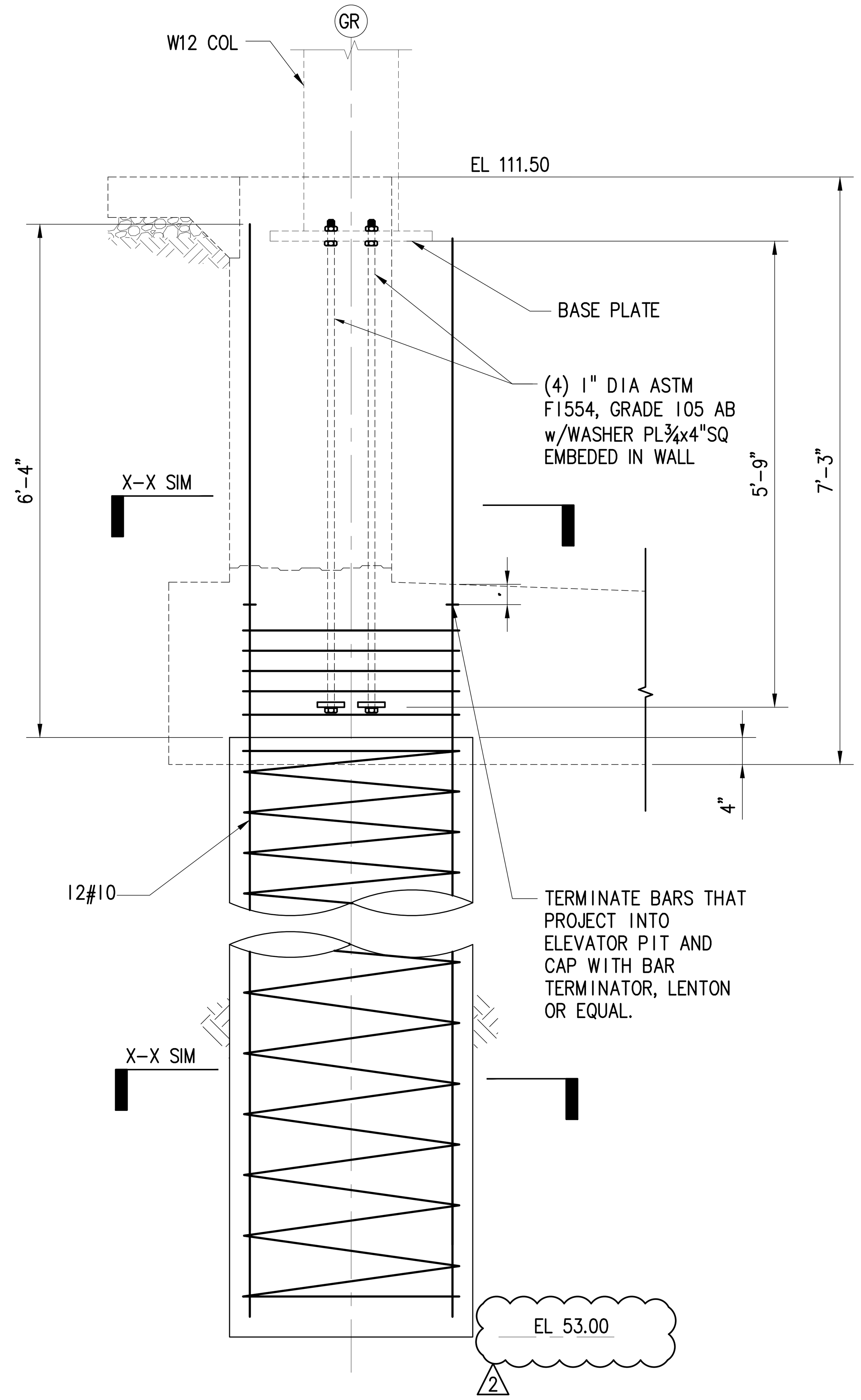


DRILLED SHAFT REINFORCING

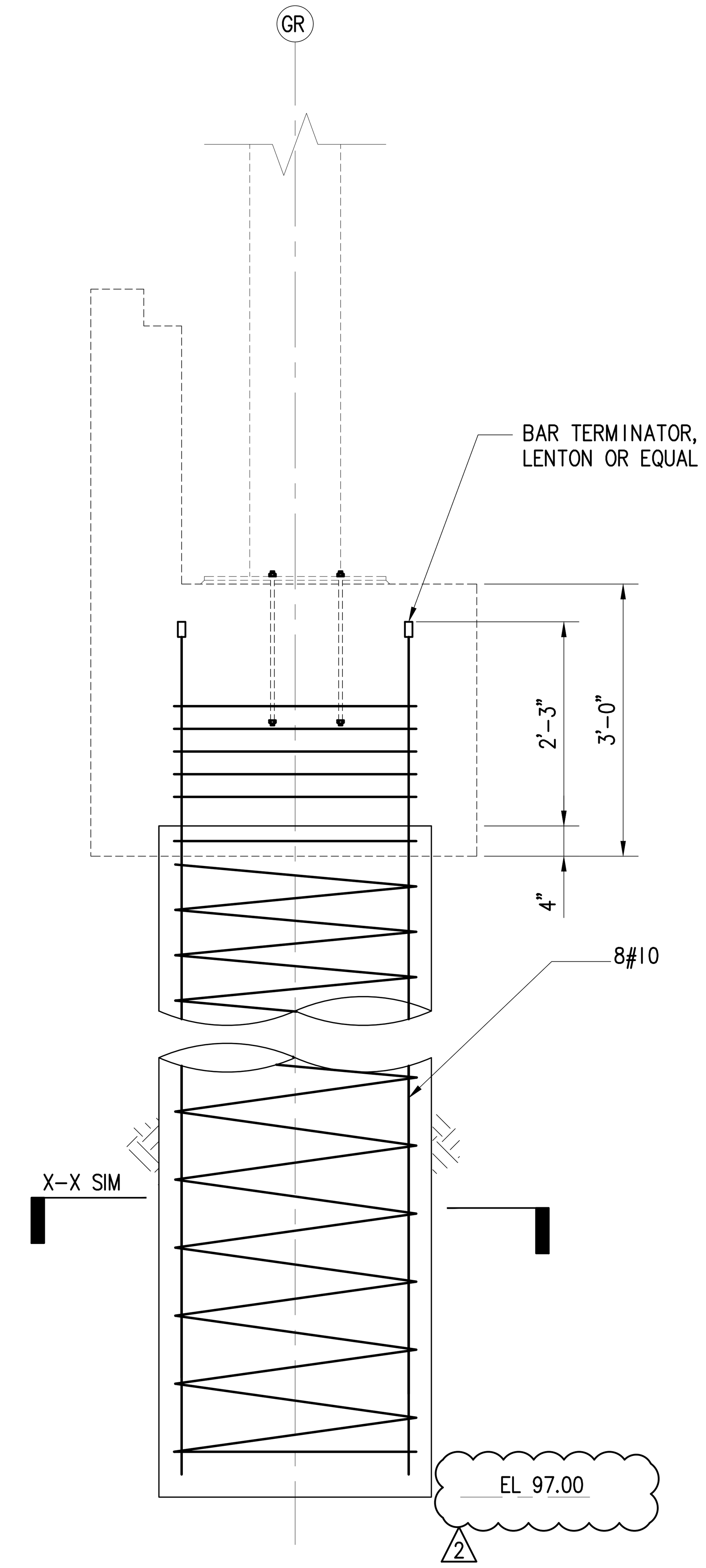


SECTION X-X

A / S100 **TYPICAL SECTION**
SCALE: 3/4" = 1'-0"



AT ELEVATOR PIT
B / S100 **SECTION**
SCALE: 3/4" = 1'-0"



AT BRIDGE ABUTMENT
C / S100 **SECTION**
SCALE: 3/4" = 1'-0"

S301

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS
2	04/17/17	AB		RESPONSE TO BUILDING DEPARTMENT COMMENTS NO. 2

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S301.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

STATE OF WASHINGTON 19813 STRUCTURAL ENGINEER PROFESSIONAL ENGINEER 05/06/2016

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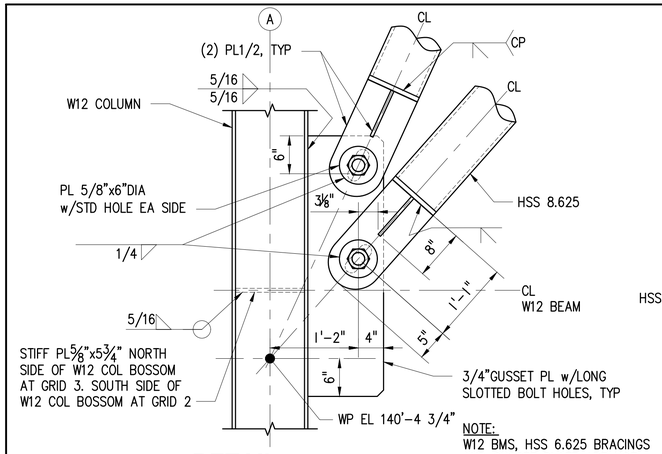
CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

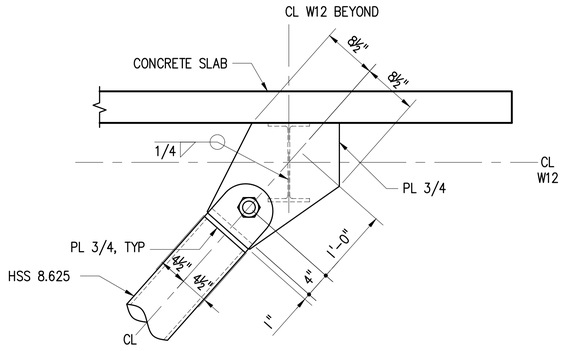
STRUCTURAL
TYPICAL CONCRETE
SECTIONS AND DETAILS

KPG PROJECT No. 13152 | SHT 37 OF 55



NOTE:
W12 BMS, HSS 6.625 BRACINGS AND GUSSET PLATE ARE NOT SHOWN FOR CLARITY

1 DETAIL
S201 SCALE:1" = 1'-0"



2 DETAIL
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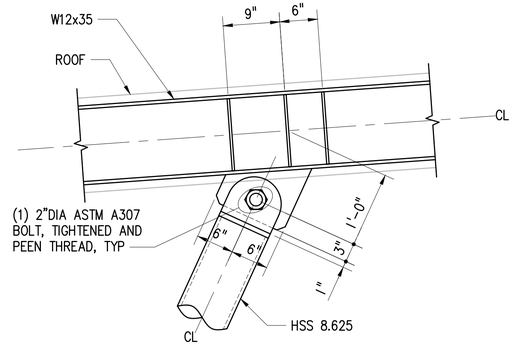
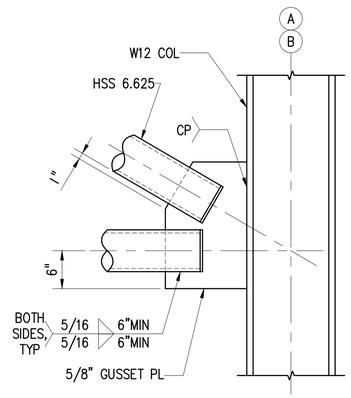


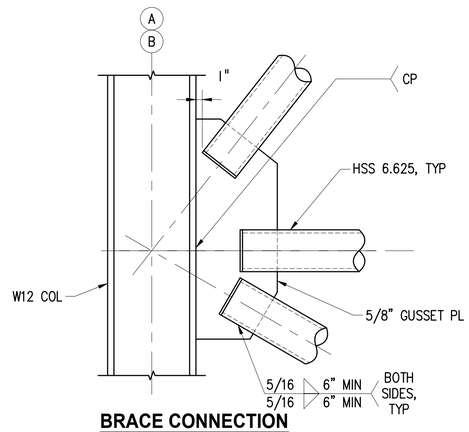
3 DETAIL
S201 SCALE:1" = 1'-0"

TYPICAL CONNECTION DETAIL NOTES:

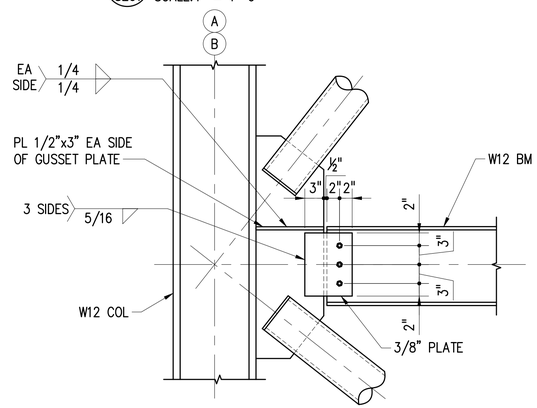
1. PROVIDE 3/4" WELDED CAP PLATE AT ENDS OF ALL HSS
2. PROVIDE 1/4" DIA WEEP HOLE AT HIGH AND LOW END POINTS OF ALL HSS
3. PROVIDE 3/4" DIA ERECTION BOLTS AT EACH END OF HSS. LEAVE BOLT IN PLACE
4. SEAL/PLUG WELD ALL HSS OVER CUTS AT GUSSET PLATES
5. WELD EACH SIDE OF HSS TO GUSSET WITH 5/8"x6" FILLET WELD, UNLESS NOTED OTHERWISE
6. FOR CLARITY, ORTHOGONAL FRAMING BEAMS ARE NOT SHOWN IN DETAIL.



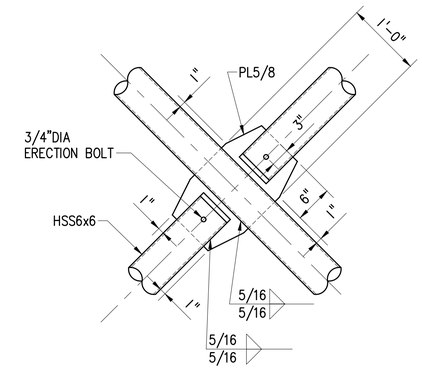
BRACE CONNECTION
5 DETAIL
S201 SCALE:1" = 1'-0"



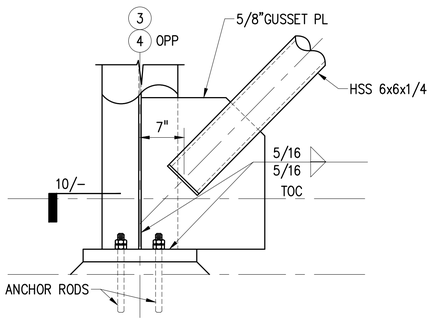
BRACE CONNECTION
6 DETAIL
S201 SCALE:1" = 1'-0"



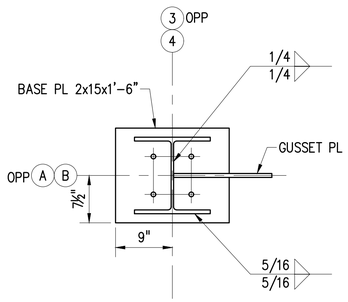
BRACE CONNECTION
7 DETAIL
S201 SCALE:1" = 1'-0"



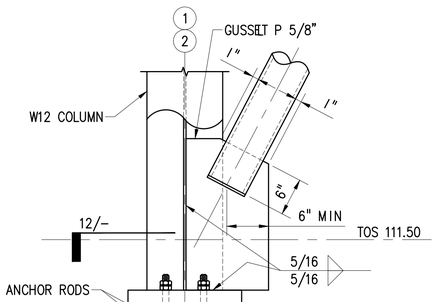
8 DETAIL
S201 SCALE:1" = 1'-0"



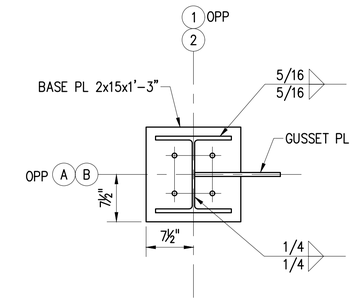
BRACE CONNECTION
9 DETAIL
S201 SCALE:1" = 1'-0"



10 DETAIL
– SCALE:1" = 1'-0"



BRACE CONNECTION
11 DETAIL
S201 SCALE:1" = 1'-0"



12 DETAIL
– SCALE:1" = 1'-0"

S302

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S302.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

STATE OF WASHINGTON · 19813 · STRUCTURAL ENGINEER · PROFESSIONAL ENGINEER
05/06/2016

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PERMIT SUBMITTAL

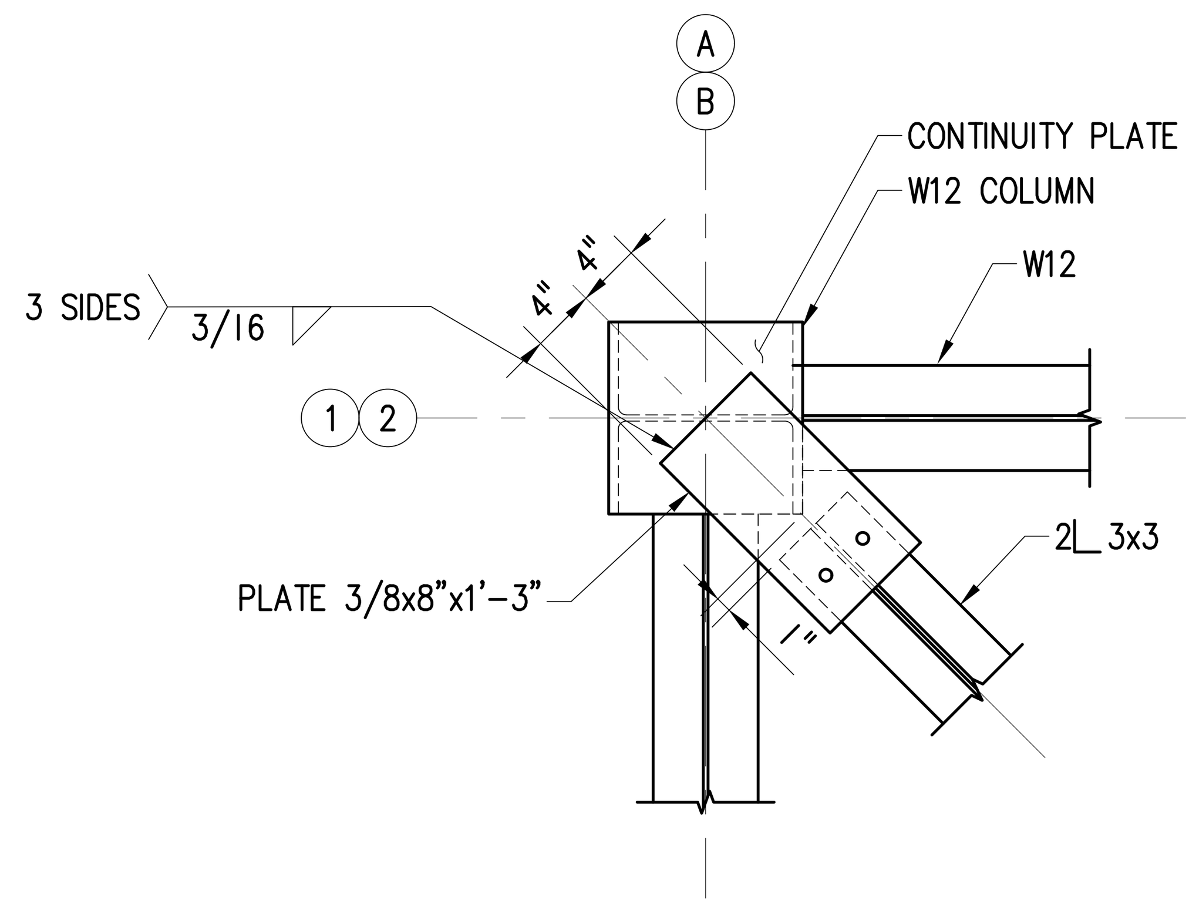
CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

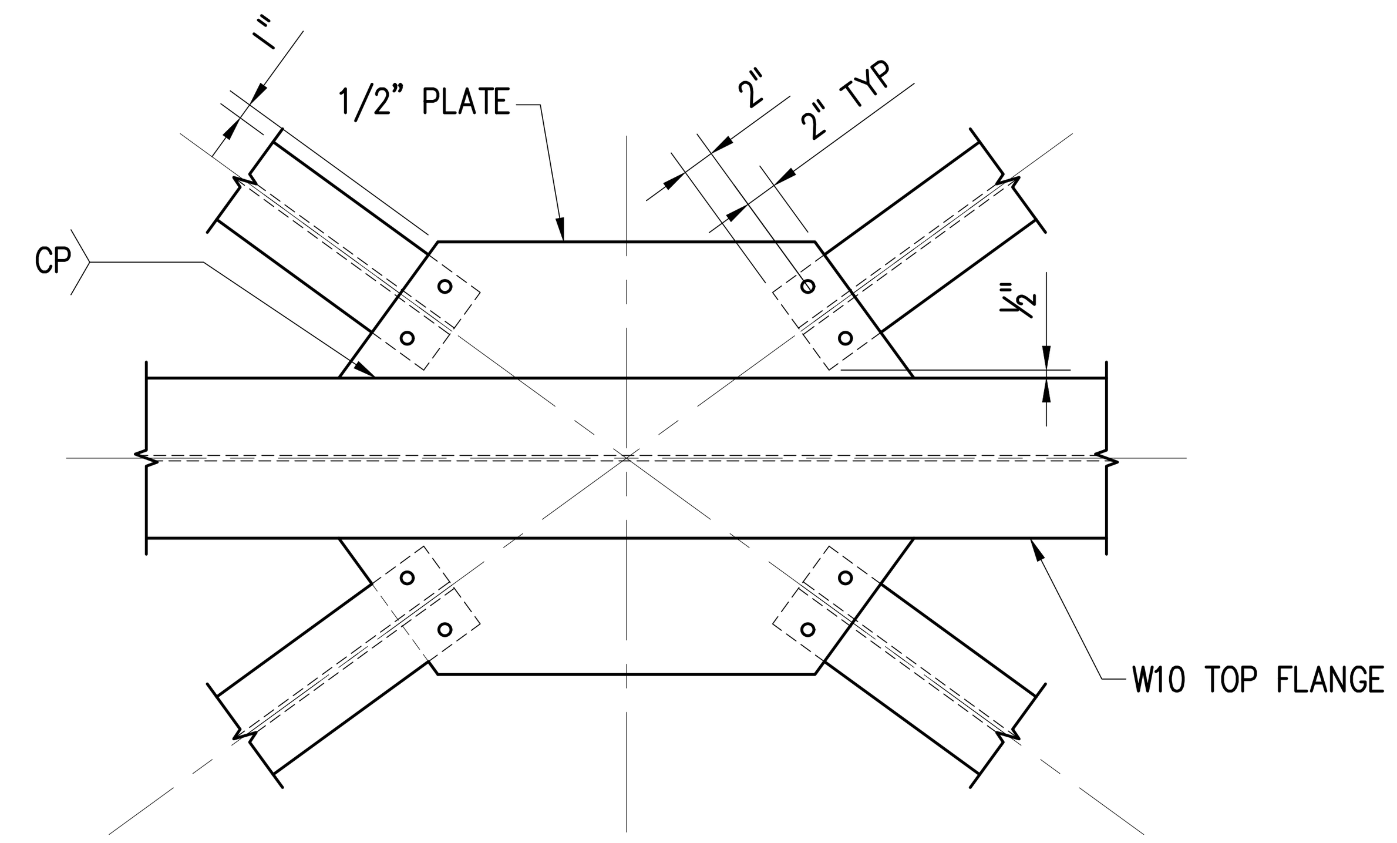
STRUCTURAL STEEL SECTIONS AND DETAILS

KPG PROJECT No. 13152 | SHT 38 OF 55

T:\138 Series – KPG\138.34 Kirkland Park and Ride_CKC Connection\138.34 – Kirkland Park and Ride_CKC Connection\Drawings\Structural\S302.dwg 4/17/2017 1:49 PM



1 DETAIL
S103 SCALE:1" = 1'-0"



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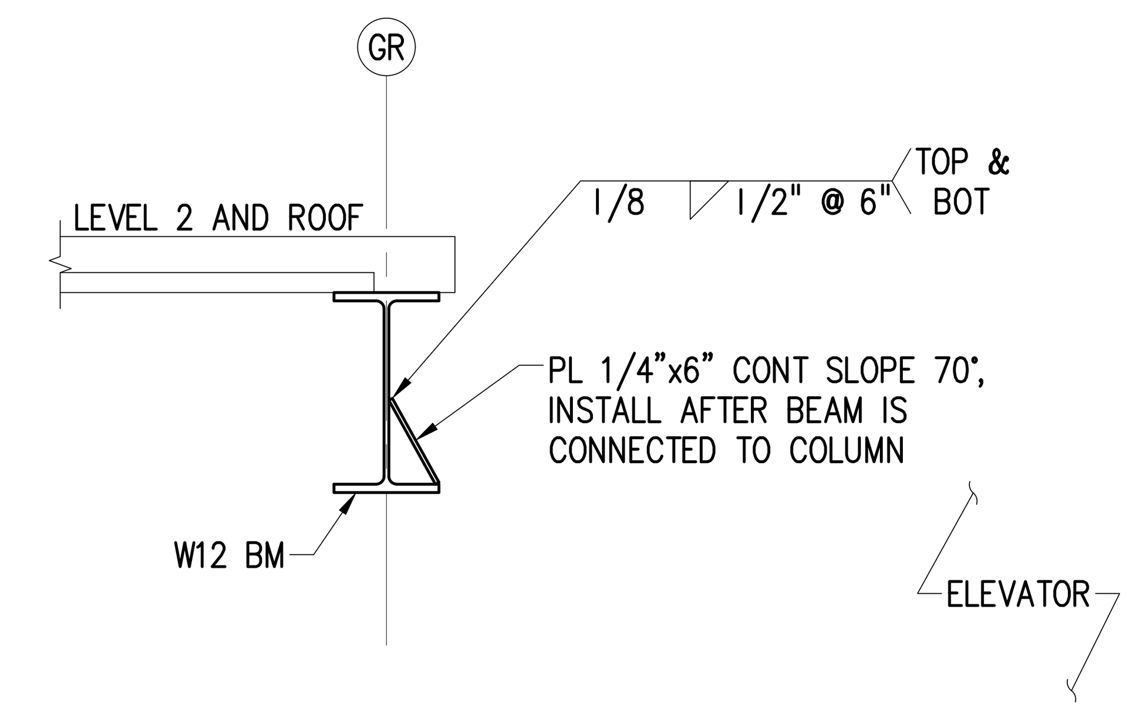
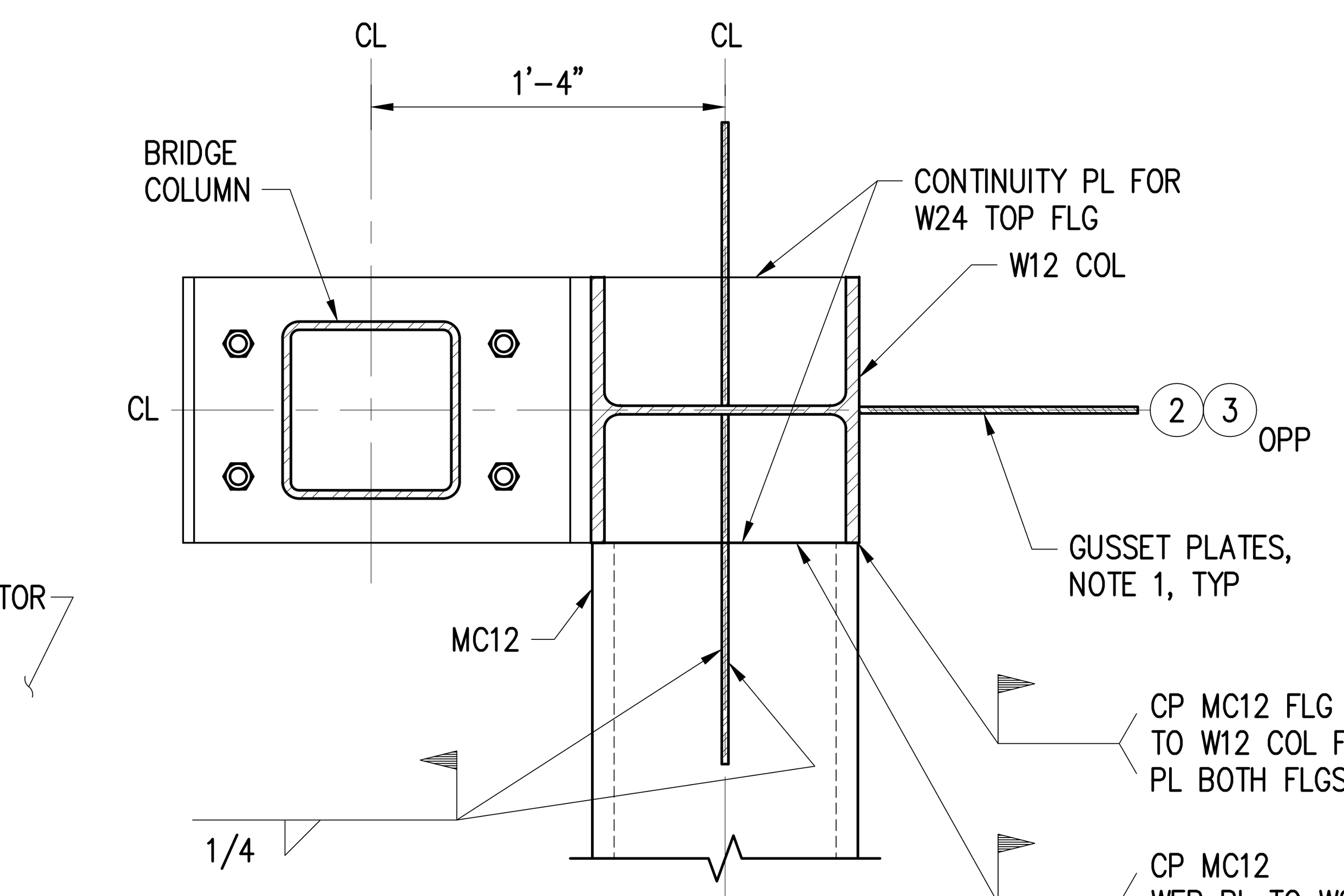
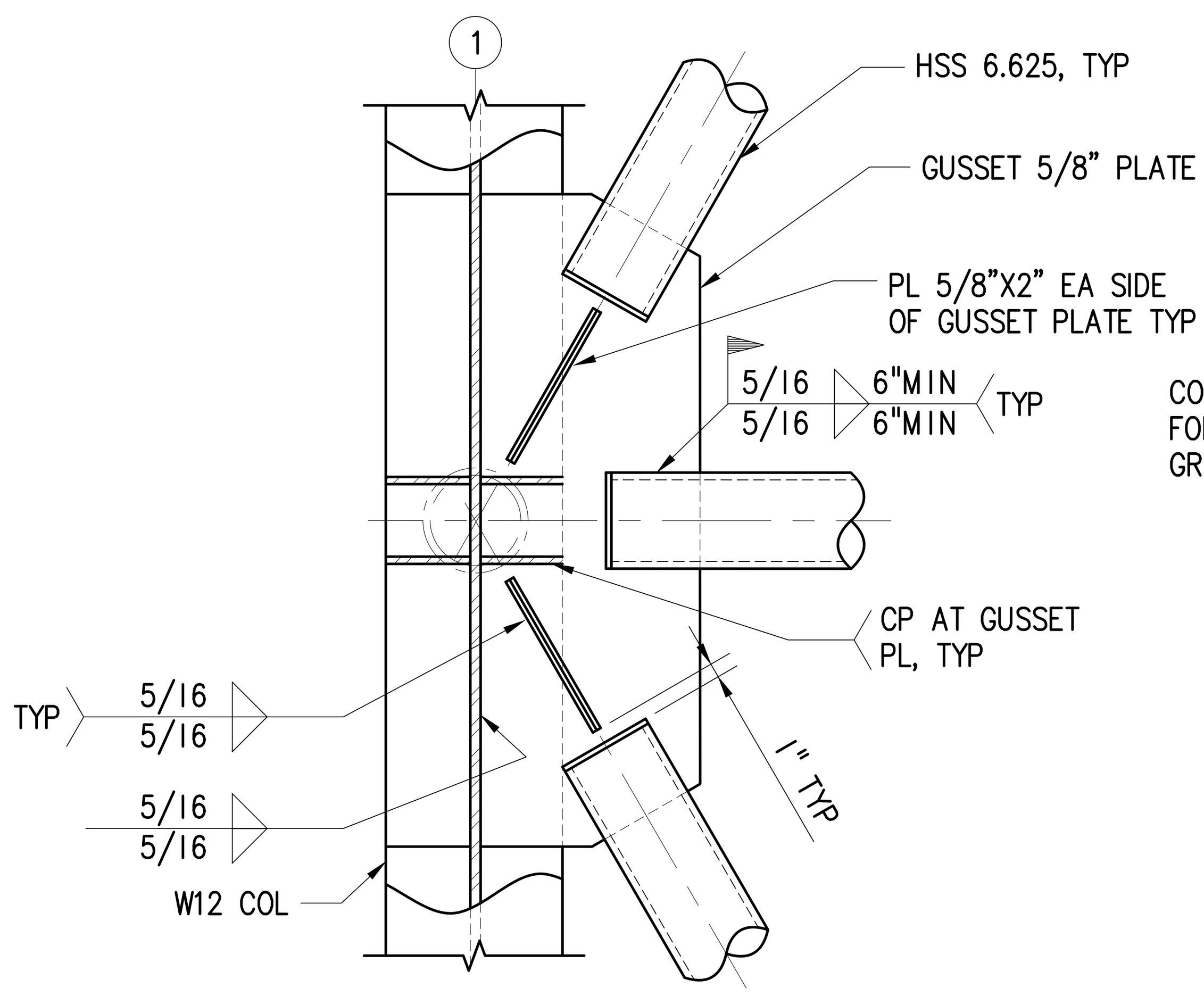


3 DETAIL
TYP SCALE:1" = 1'-0"



NOTES:
1. HSS 6.625 BRACINGS ARE NOT SHOWN.
2. PROVIDE SLOTS IN MC12 FOR GUSSET PLATE.

SECTION A-A



5 DETAIL
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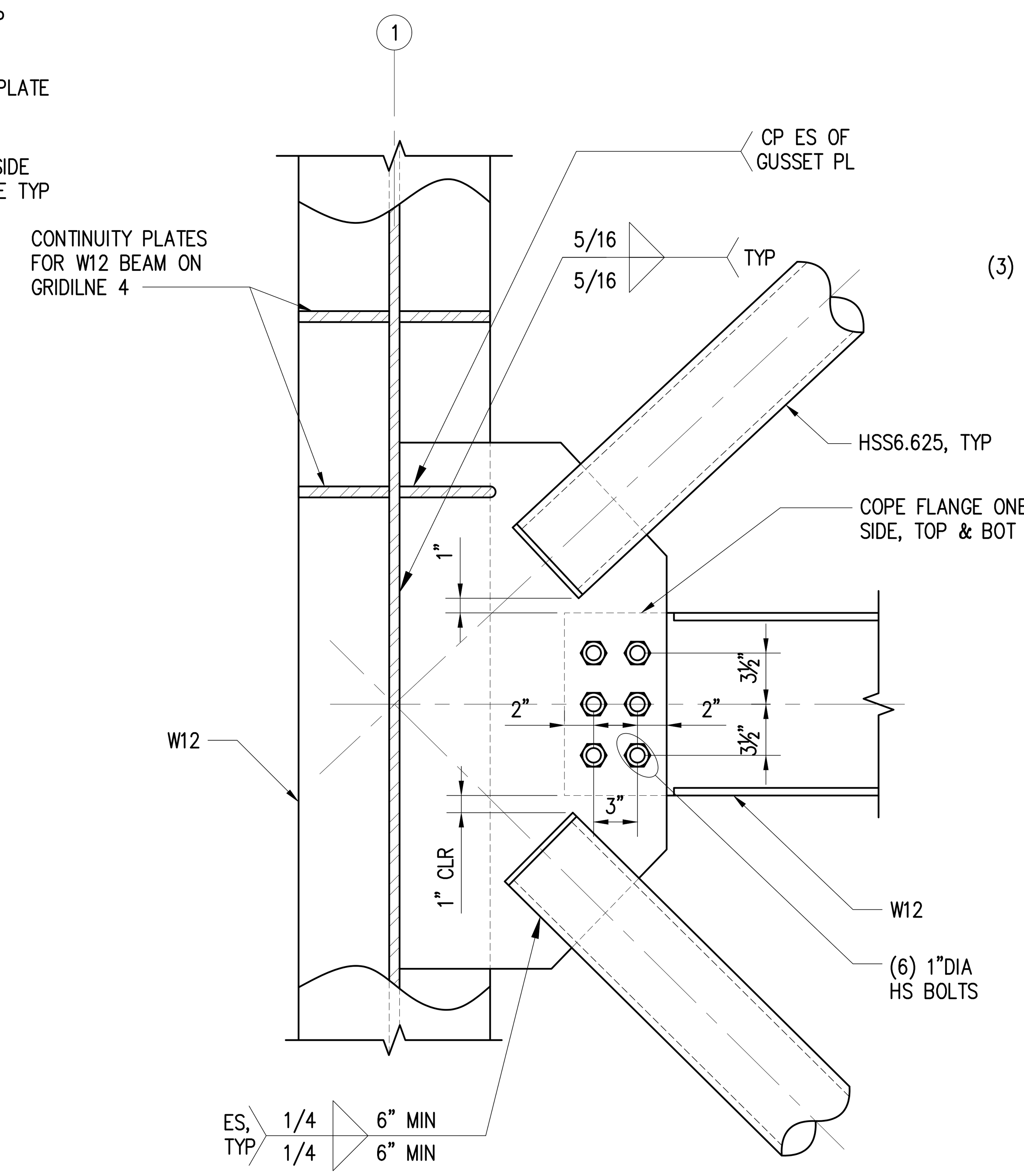
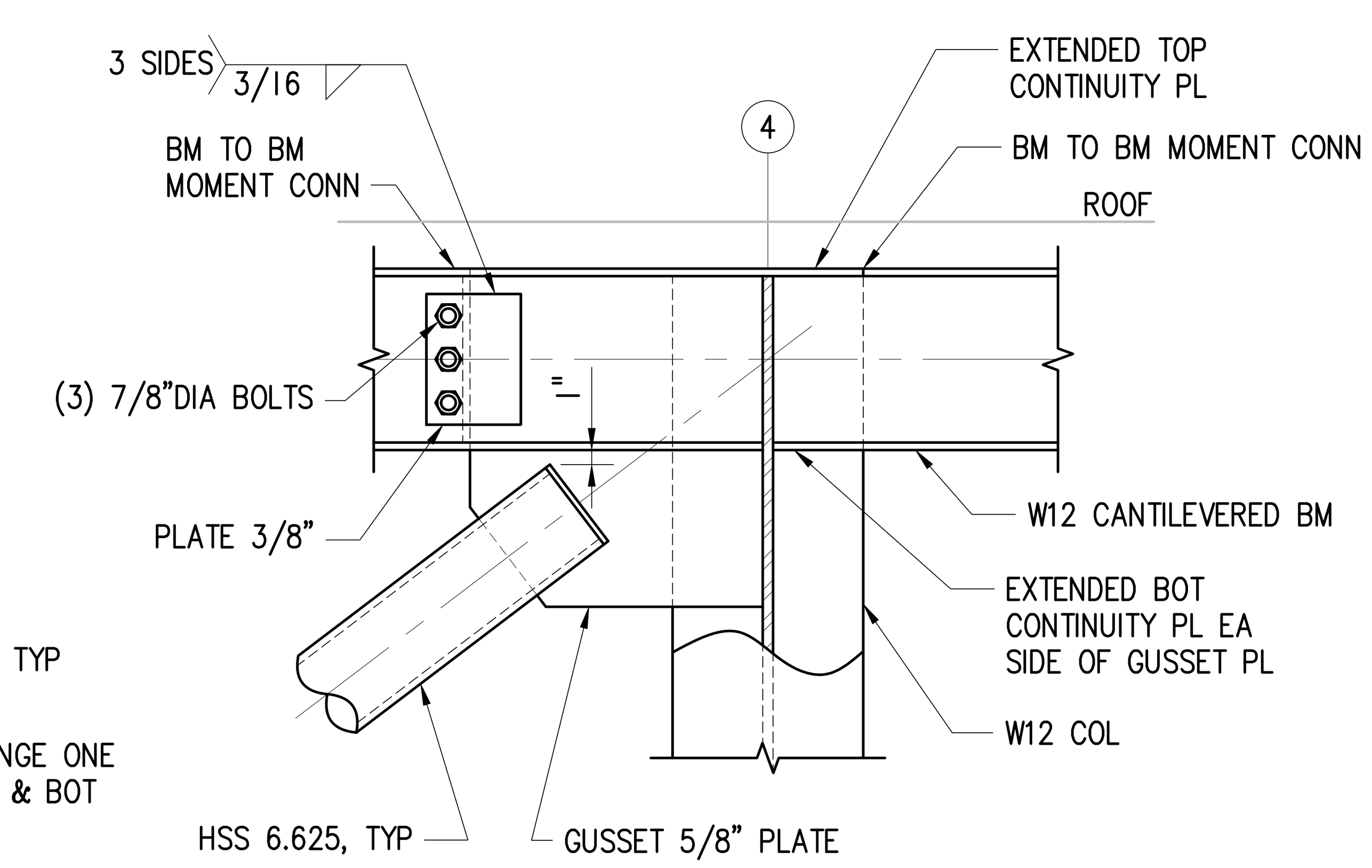
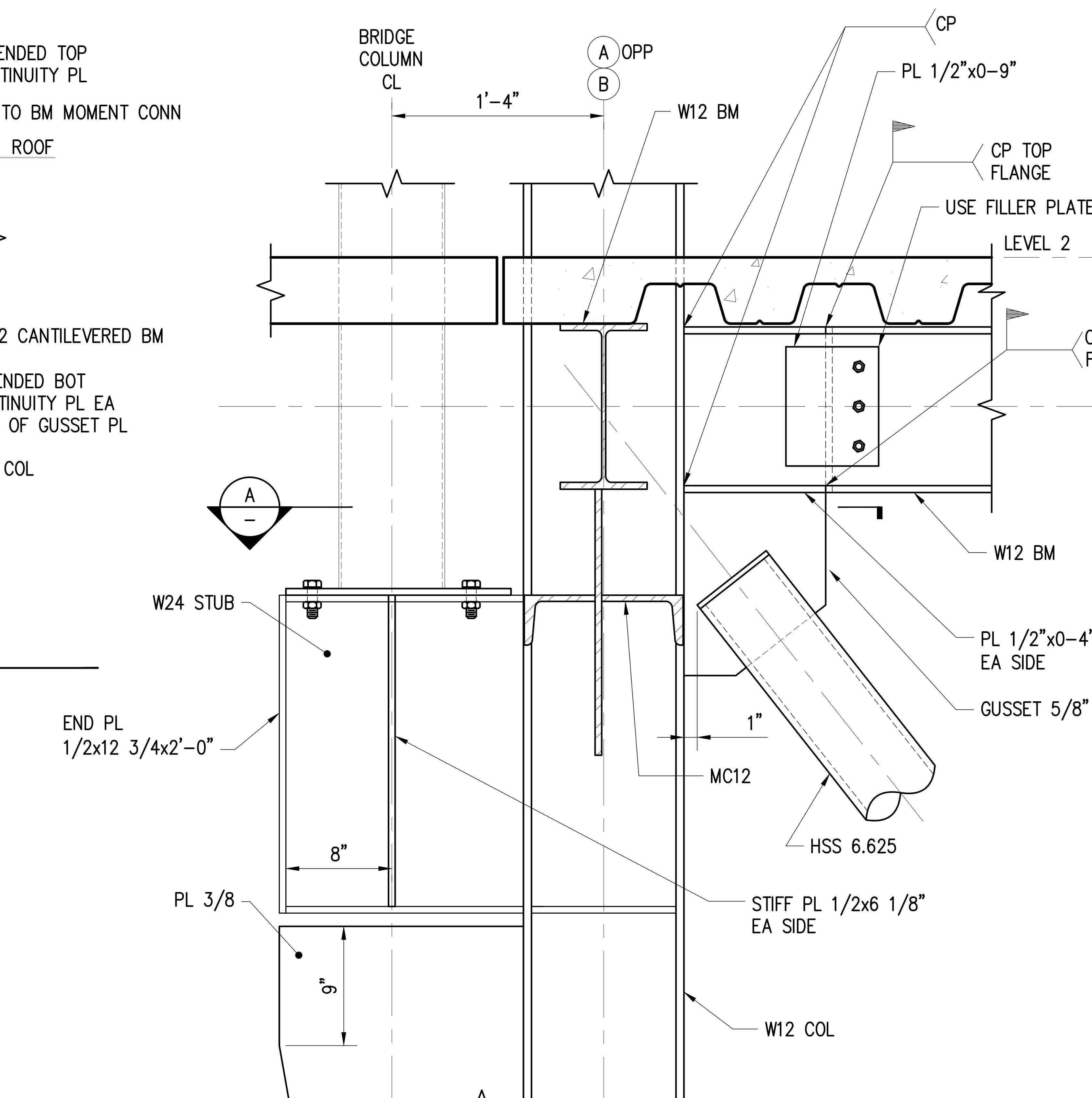


9 DETAIL
S202 SCALE:1 1/2" = 1'-0"



7 DETAIL
S202 SCALE:1" = 1'-0"



CROSS SECTION

12 DETAIL
S201 SCALE:1 1/2" = 1'-0"

S303

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S303.dwg FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

05/06/2016

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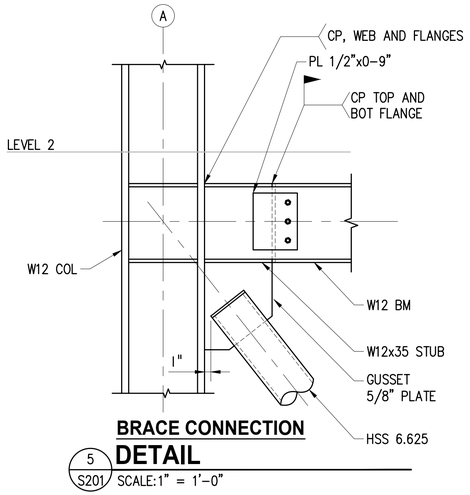
PERMIT SUBMITTAL

CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL STEEL SECTIONS AND DETAILS

KPG PROJECT No. 13152 SHT 39 OF 55



BRACE CONNECTION

5 S201 **DETAIL**

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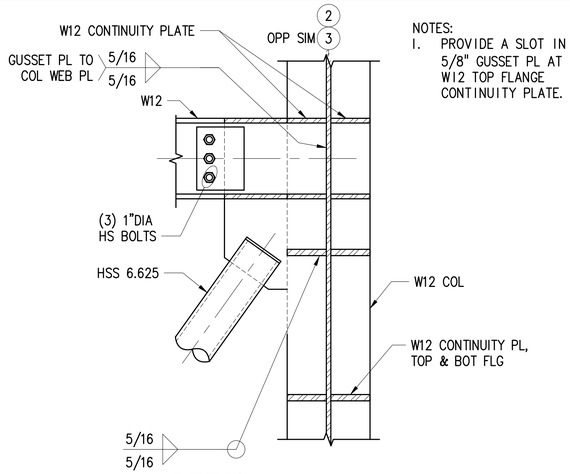
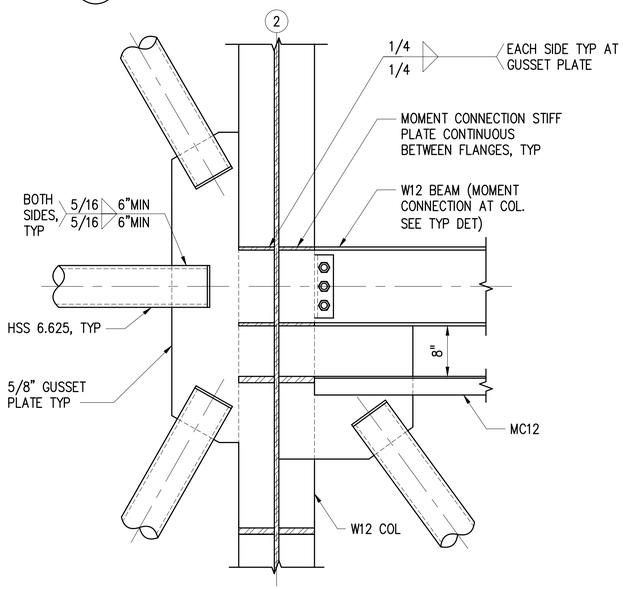


3 S202 **DETAIL**

SCALE:1" = 1'-0"

NOTES:

1. PROVIDE A SLOT IN 5/8" GUSSET PL AT W12 TOP FLANGE CONTINUITY PLATE.



7 S202 **DETAIL**

SCALE:1" = 1'-0"

S304

NO.	DATE	BY	APPR.	REVISIONS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S304.dwg	
FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

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05/06/2016

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STRUCTURAL STEEL SECTIONS AND DETAILS

KPG PROJECT No. 13152

SHT 40 OF 55

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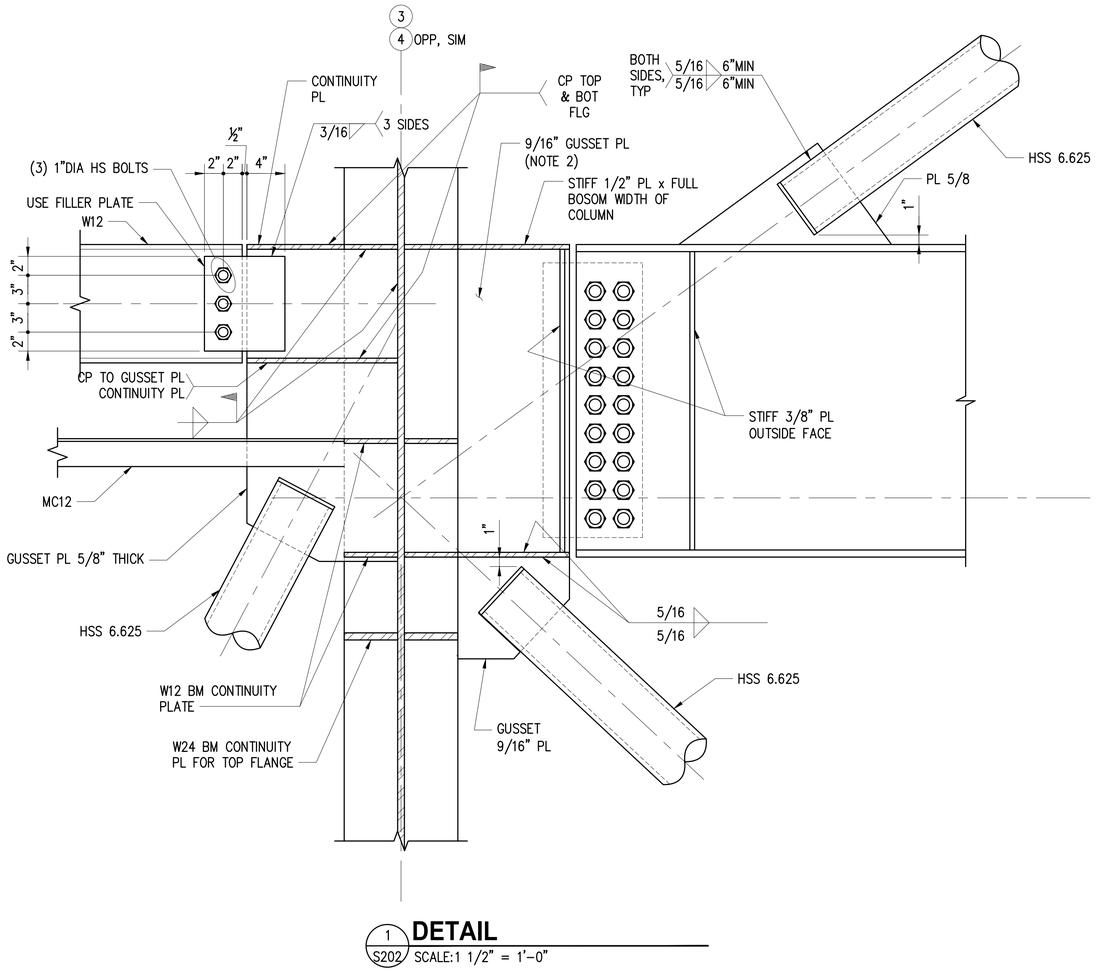
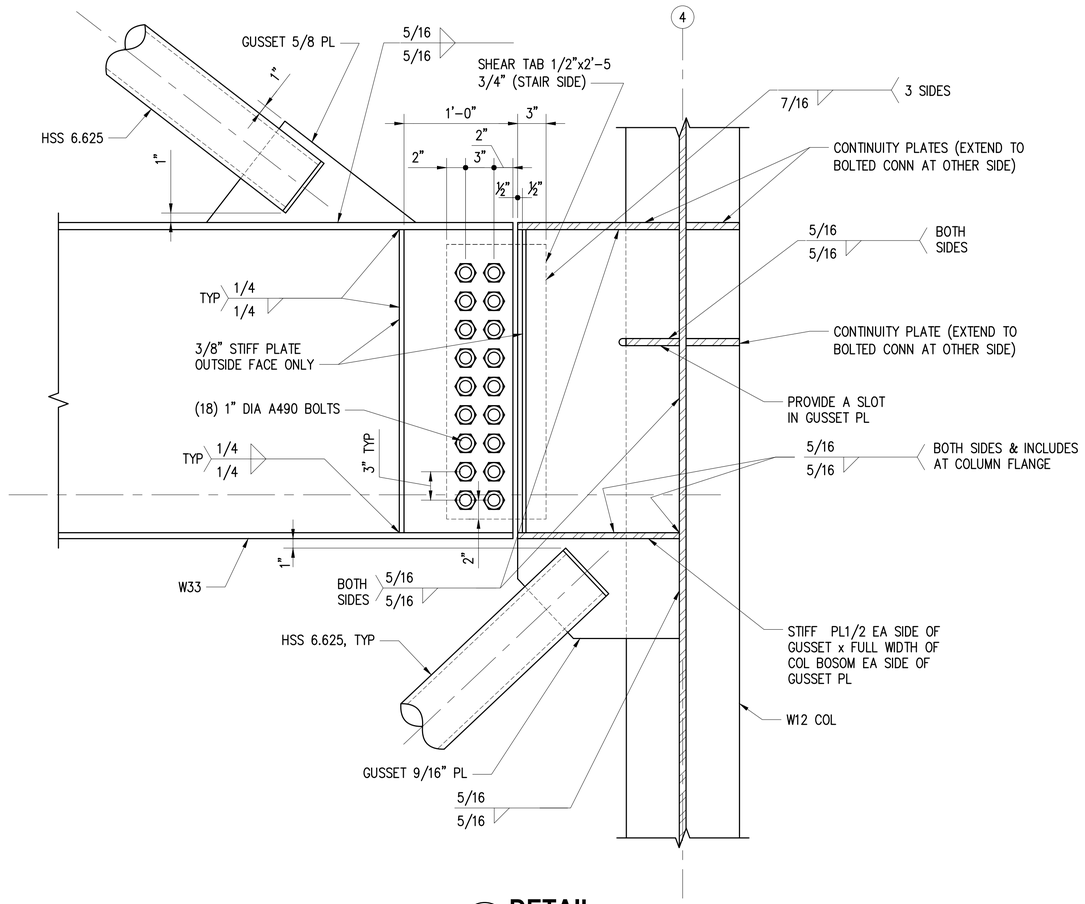


1 S202 **DETAIL**
SCALE:1 1/2" = 1'–0"



2 S202 **DETAIL**
SCALE:1 1/2" = 1'–0"

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER DATE

PROJECT MANAGER DATE

PROJECT ENGINEER DATE

S305.dwg FILENAME

I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

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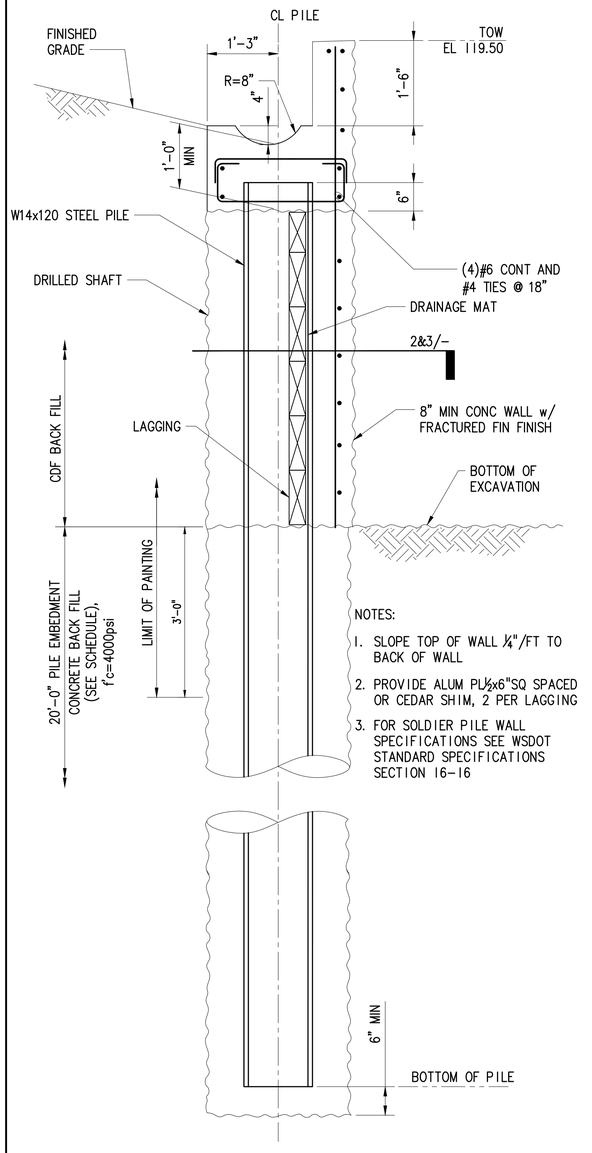
CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL STEEL SECTIONS AND DETAILS

KPG PROJECT No. 13152

S305

SHT 41 OF 55



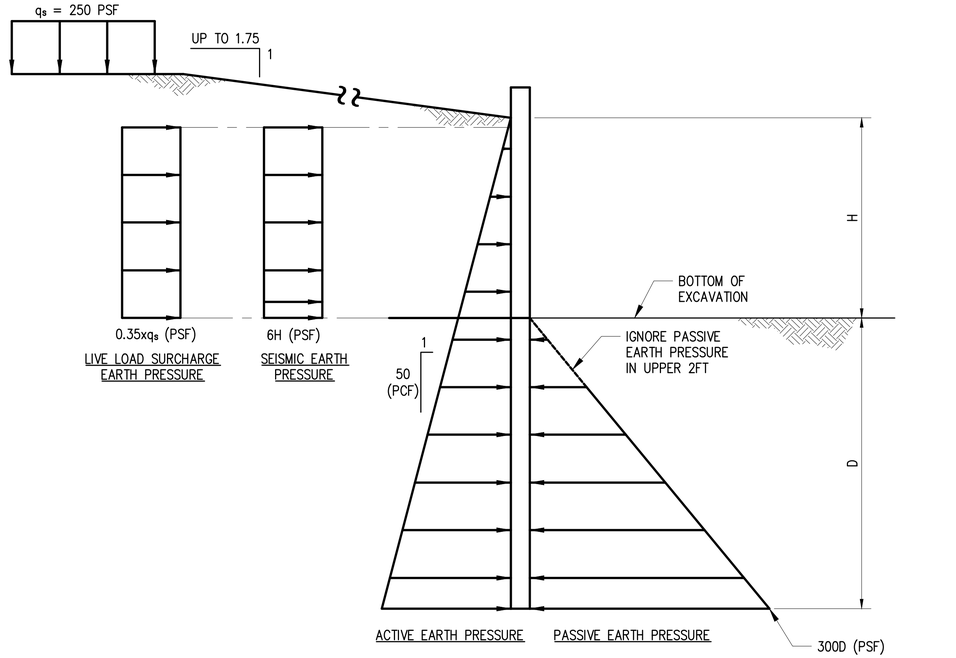
NOTES:

1. SLOPE TOP OF WALL ¼"/FT TO BACK OF WALL
2. PROVIDE ALUM PL½x6"SQ SPACED OR CEDAR SHIM, 2 PER LAGGING
3. FOR SOLDIER PILE WALL SPECIFICATIONS SEE WSDOT STANDARD SPECIFICATIONS SECTION 16-16

AT RETAINING WALL

A / S100 SECTION

SCALE: 3/4" = 1'-0"



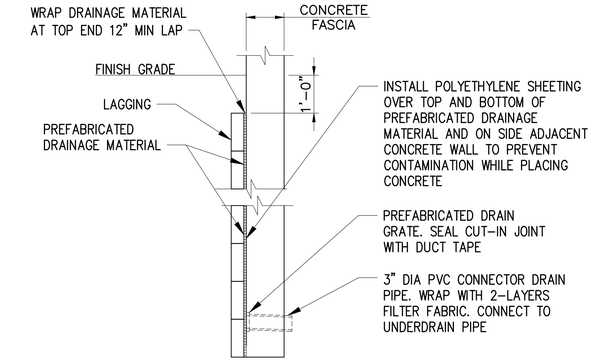
NOTES:

1. DIAGRAM APPLIES TO DRILLED SOLDIER PILE WALL WITH TIMBER LAGGING, DESIGNED AS A CANTILEVERED WALL.
2. ALL PRESSURES EXPRESSED AS AN EQUIVALENT FLUID UNIT WEIGHT.
3. ACTIVE EARTH AND SURCHARGE PRESSURES ACT OVER THE PILE SPACING ABOVE THE BASE OF THE EXCAVATION.
4. PASSIVE RESISTANCE ARE ALLOWABLE VALUES AND INCLUDE A SAFETY FACTOR OF 1.5.
5. PASSIVE PRESSURES ACT OVER 2.5 TIMES CONCRETED PILE DIAMETER, OR THE PILE SPACING, WHICHEVER IS LESS.
6. 50% OF ACTIVE AND SURCHARGE PRESSURES ACT ON ALL LAGGING BETWEEN SOLDIER PILES.

CANTILEVER SOLDIER PILE

PRESSURE DIAGRAM

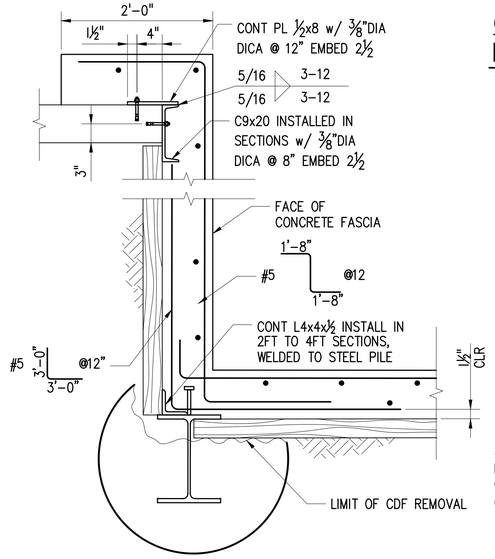
SCALE: NTS



SOLDIER PILE WALL DRAIN

1 / TYP DETAIL

SCALE: NTS



2 / – DETAIL

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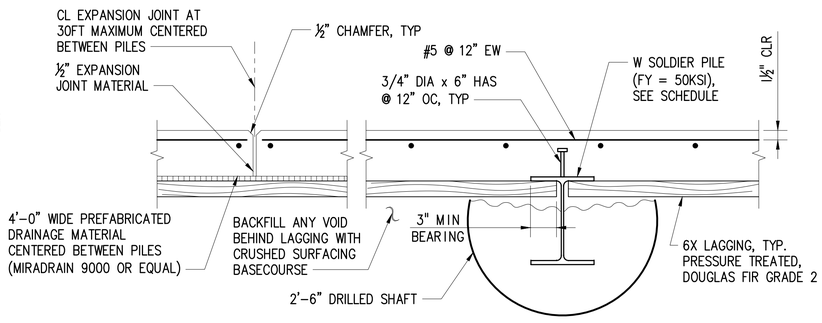

3 / – DETAIL

SCALE: 1" = 1'-0"

S306

NO.	DATE	BY	APPR.	REVISIONS
1	08/01/16	AB		BUILDING DEPARTMENT COMMENTS

Approved By

ENGINEERING MANAGER	DATE
PROJECT MANAGER	DATE
PROJECT ENGINEER	DATE

S306.dwg

FILENAME	
I IKEDA	SEPT 4 2014
DESIGNED BY	DATE
K FLEMING	SEPT 4 2014
DRAWN BY	DATE
A BRIGHT	SEPT 4 2014
CHECKED BY	DATE

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05/06/2016

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CITY OF KIRKLAND WASHINGTON

CITY OF KIRKLAND
PARK & RIDE CKC CONNECT

STRUCTURAL TYPICAL CONCRETE SECTIONS AND DETAILS

KPG PROJECT No. 13152

SHT 37 OF 55

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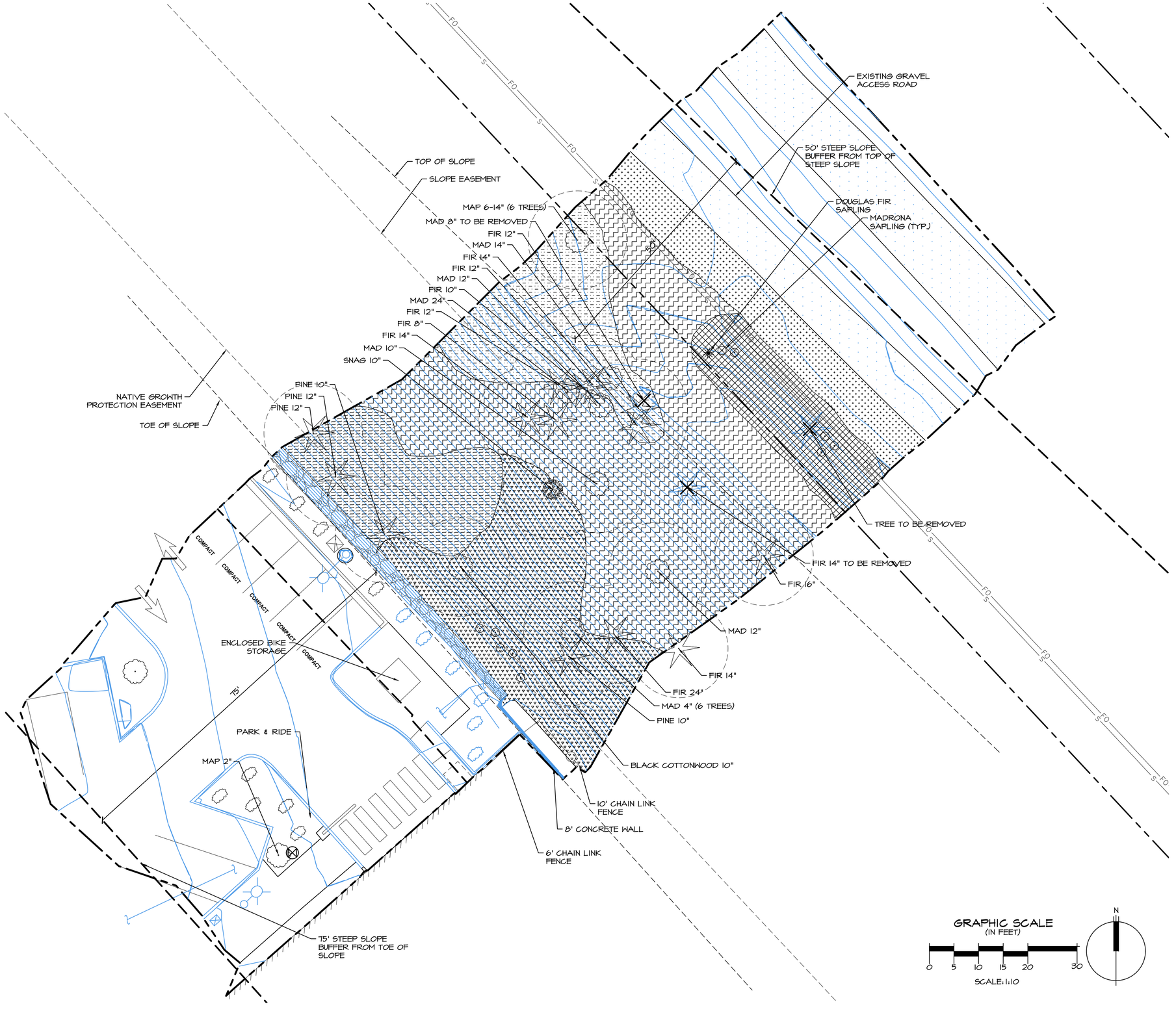

PLAN LEGEND

- PROPERTY LINE
- STEEP SLOPE
- STEEP SLOPE BUFFER
- CLEARING LIMITS
- EXISTING TREES TO BE REMOVED (3) - SEE TREE REPLACEMENTS ON SHEET 3 OF 4

EXISTING VEGETATION LEGEND

- GRASS - REMOVE INVASIVES AND REPLANT WITH SHRUBS AT 5' O.C. SPACING AND GROUNDCOVER
- HIMALAYAN BLACKBERRY UNDERSTORY - REMOVE INVASIVES AND REPLANT WITH SHRUBS AT 5' O.C. SPACING AND GROUNDCOVER
- IVY/HIMALAYAN BLACKBERRY UNDERSTORY - REMOVE INVASIVES AND REPLANT WITH SHRUBS AT 5' O.C SPACING AND GROUNDCOVER
- OPEN - REMOVE SCATTERED WEEDS AND REPLANT WITH SHRUBS AT 5' O.C. SPACING AND GROUNDCOVER
- NATIVE SHRUBS AND SAPLINGS AT DENSITY GREATER THAN 5' O.C. SPACING - REMOVE IVY UNDERSTORY AND PLANT GROUNDCOVER AT 100% DENSITY
- 100% HIMALAYAN BLACKBERRY UNDERSTORY - REMOVE INVASIVES AND REPLANT WITH SHRUBS AT 5' O.C. SPACING (OUTSIDE MADRONA SAPLINGS) AND GROUNDCOVER

GRAPHIC SCALE
(IN FEET)
0 5 10 15 20 30
SCALE: 1:10

N

NOTES

1. ALL BASE INFORMATION SUPPLIED BY KPG, 753 9TH AVE N., SEATTLE, WA, 98109, (206) 286-1640.
2. STEEP SLOPE BUFFERS ARE REDUCED PER GEOTECHNICAL REPORT.

AOA
Altmann Oliver Associates, LLC
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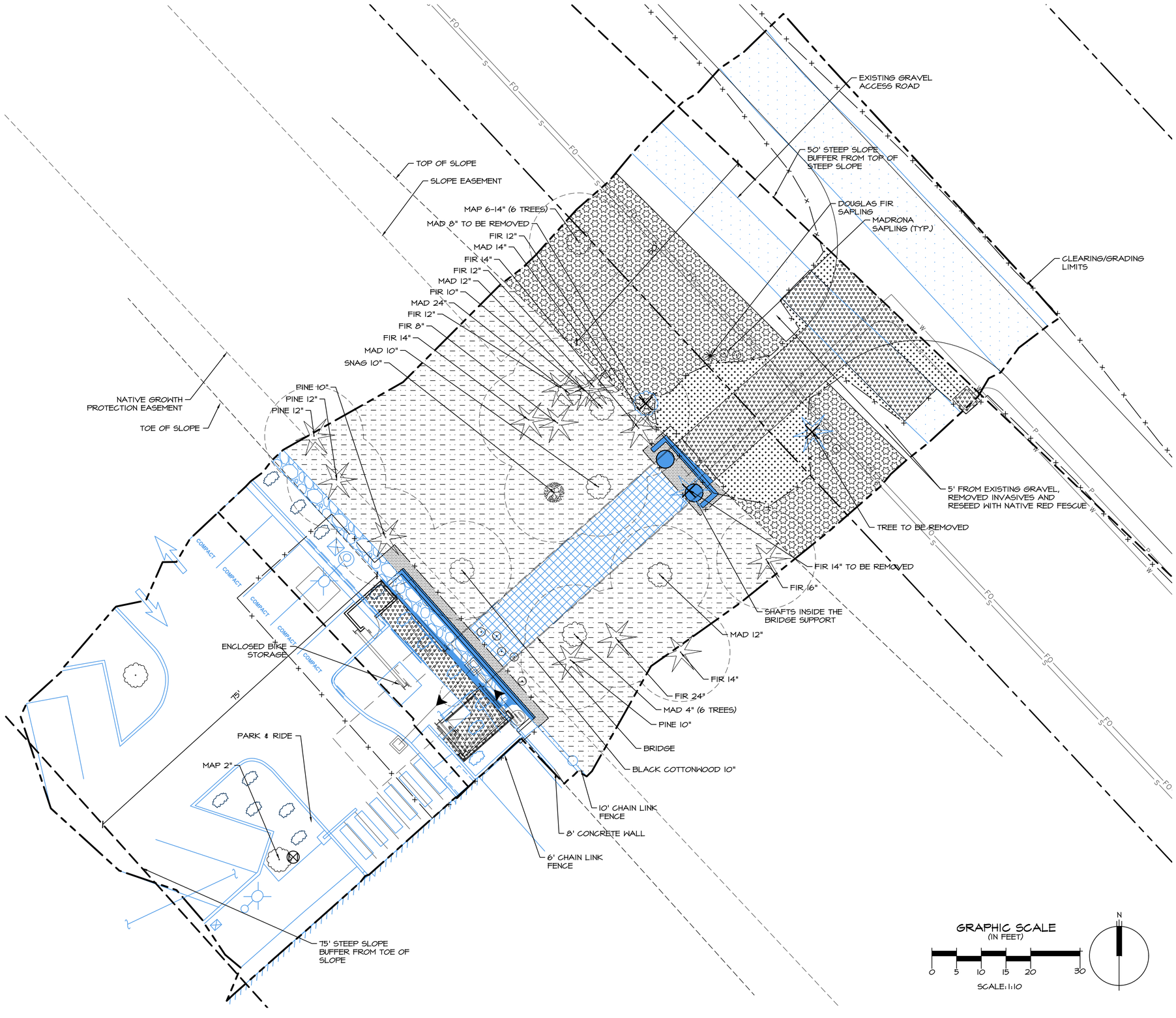
STATE OF WASHINGTON
REGISTERED LANDSCAPE ARCHITECT
SIRONE CATHERINE OLIVER
CERTIFICATE NO. 744
EXPIRES 6/25/18

EXISTING VEGETATION MAP
PARK & RIDE CKC CONNECT
KIRKLAND, WASHINGTON

Revisions	Date	By

Date 09-15-17
Scale AS NOTED
Project# 4529

Sheet # L1.1



PLAN LEGEND

- PROPERTY LINE
- STEEP SLOPE
- STEEP SLOPE BUFFER
- CLEARING LIMITS
- EXISTING TREES TO BE REMOVED (3) - SEE TREE REPLACEMENTS ON SHEET 3 OF 4

IMPACT LEGEND

PERMANENT STEEP SLOPE IMPACT	138 SF
TEMPORARY STEEP SLOPE IMPACT	157 SF
TEMPORARY STEEP SLOPE BUFFER IMPACT	549 SF
PERMANENT STEEP SLOPE BUFFER IMPACT	1,051 SF
SHADED STEEP SLOPES	544 SF

MITIGATION LEGEND

STEEP SLOPE RESTORATION	157 SF
STEEP SLOPE BUFFER RESTORATION	549 SF
STEEP SLOPE ENHANCEMENT	3,940 SF
STEEP SLOPE BUFFER ENHANCEMENT	1,795 SF
ENHANCED STEEP SLOPE UNDER WALKWAY	544 SF

GRAPHIC SCALE
(IN FEET)
0 5 10 15 20 30
SCALE: 1:10

N

NOTES

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Environmental Planning & Landscape Architecture
PO Box 576 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

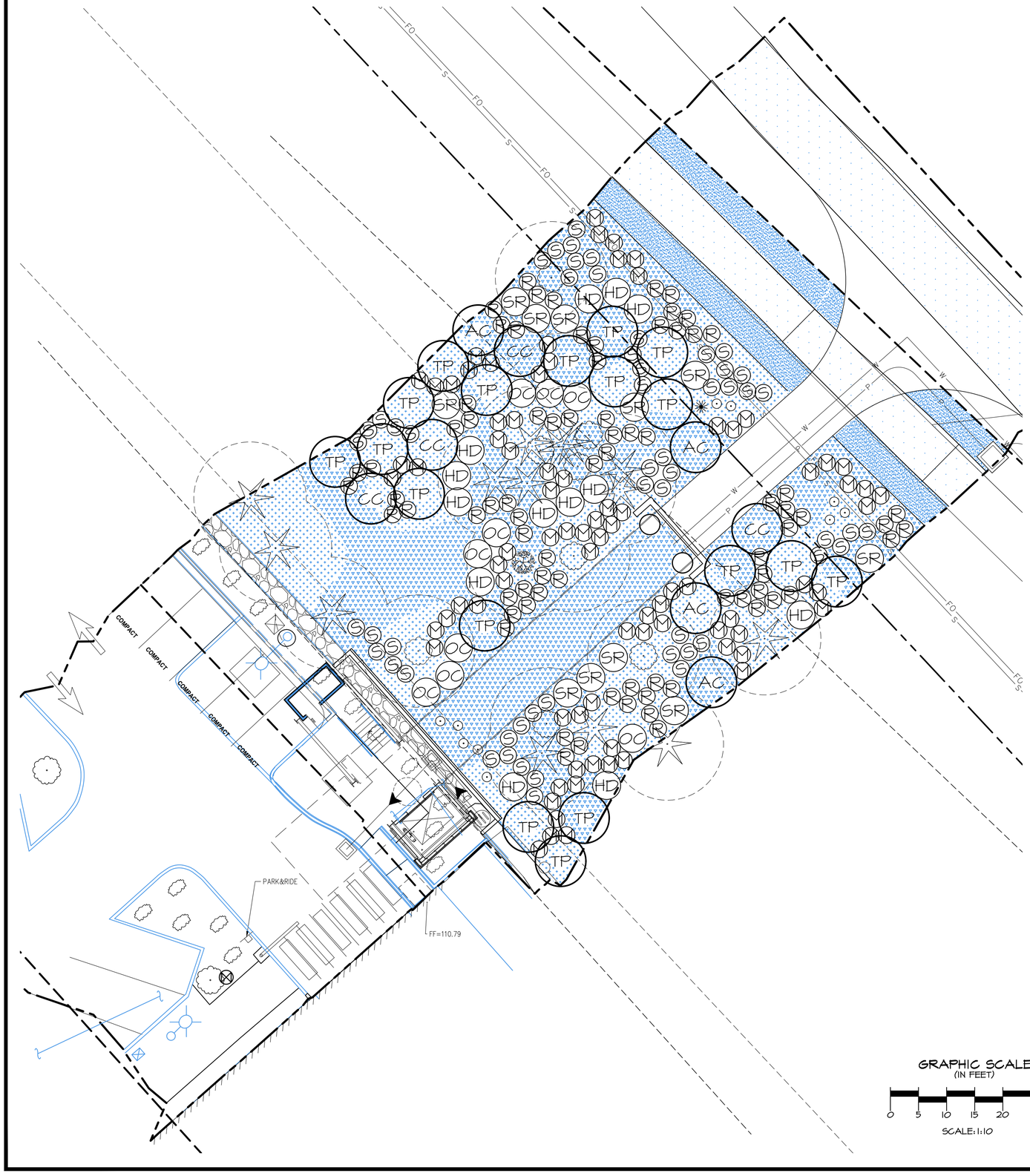
STATE OF WASHINGTON
REGISTERED LANDSCAPE ARCHITECT
SIRONE CATHERINE OLIVER
CERTIFICATE NO. 744
EXPIRES 6/25/18

MITIGATION PLAN
PARK & RIDE CKC CONNECT
KIRKLAND, WASHINGTON

Revisions	Date	By

Date 09-15-17
Scale AS NOTED
Project# 4529

Sheet # L2.1



PLANT SCHEDULE

TREES (*TREE REPLACEMENTS PROVIDED AT A 6:1 RATIO FOR REDUCED SIZE TO MAKE PLANTING AND ESTABLISHMENT ON SLOPE EASIER)

KEY	SCIENTIFIC NAME	COMMON NAME	SIZE (MIN.)	DENSITY	QTY.	NOTES
AC	ACER CIRCINATUM	VINE MAPLE	2 GAL.	10' O.C.	4	MULTI-STEM (3 MIN.)
CC	CORYLUS CORNUTA	WESTERN HAZELNUT	2 GAL.	10' O.C.	4	MULTI-STEM (3 MIN.)
TP	THUJA PLICATA*	WESTERN RED CEDAR	2 GAL.	10' O.C.	18	FULL & BUSHY

SHRUBS

KEY	SCIENTIFIC NAME	COMMON NAME	SIZE (MIN.)	DENSITY	QTY.	NOTES
HD	HOLODISCUS DISCOLOR	OCEAN SPRAY	1 GAL.	5' O.C.	13	MULTI-CANE (3 MIN.)
M	MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	1 GAL.	5' O.C.	83	FULL & BUSHY
OC	OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL.	5' O.C.	9	MULTI-CANE (3 MIN.)
R	ROSA NUTKANA	NOOTKA ROSE	1 GAL.	5' O.C.	77	MULTI-CANE (3 MIN.)
SR	SAMBUCUS RACEMOSA	RED ELDERBERRY	1 GAL.	5' O.C.	11	MULTI-CANE (3 MIN.)
S	SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL.	5' O.C.	55	MULTI-CANE (3 MIN.)

GROUNDCOVER/PERENNIALS

KEY	SCIENTIFIC NAME	COMMON NAME	SIZE (MIN.)	SPACING	QTY.	NOTES
	GAULTHERIA SHALLON	SALAL	1 GAL. OR 4" POT	3' O.C.	207	FULL & BUSHY
	POLYSTICHUM MUNITUM	SWORD FERN	1 GAL. OR 4" POT	4' O.C.	170	FULL & BUSHY
	FESTUCA RUBRA	RED FESCUE	SEED			

GRAPHIC SCALE
(IN FEET)
0 5 10 15 20 30
SCALE: 1:10

N

NOTES

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STATE OF WASHINGTON
REGISTERED LANDSCAPE ARCHITECT
SIMONE CATHERINE OLIVER
CERTIFICATE NO. 744
EXPIRES 6/25/18

PLANTING PLAN
PARK & RIDE CKC CONNECT
KIRKLAND, WASHINGTON

Revisions	Date	By

Date 09-15-17
Scale AS NOTED
Project# 4529

Sheet # L3.1

CONSTRUCTION SPECIFICATIONS

PART 1 - GENERAL SITE CONDITIONS

GENERAL SITE CONDITIONS

Contractor shall give AOA a minimum of ten (10) days notice prior to entention to proceed with construction.

No construction work shall commence until there is a meeting between the client, AOA, General, Clearing, and/or Earthwork Contractors, and participating Contractor. The approved plans and specifications shall be reviewed to allow parties involved to understand the intent and the specific details related to the construction documents, specifications, and site constraints.

Locations of existing utilities have been established by field survey or obtained from available records and should be considered approximate only and not necessarily complete. It is the sole responsibility of the Contractor to: (1) independently verify the accuracy of utility locations and (2) discover and avoid any utilities within the mitigation area(s) not shown, which may be affected by implementation of this plan. Such area(s) are to be clearly marked in the field. AOA shall resolve any conflicts with the approved plan prior to start of construction.

A copy of the approved plans must be on site whenever construction is in progress and shall remain on site until project completion.

Construction must be performed in accordance with city of Bellevue standards, codes, permit conditions, and other applicable ordinances and policies.

The applicant is responsible for obtaining any other related or required permits prior to the start of construction.

A qualified wetland consultant shall be on site, as necessary, to monitor construction and approve minor revisions to the plan.

SURVEY/STAKE/FLAG LIMITS OF CLEARING

Prior to any construction, a licensed surveyor shall survey, stake, and flag the clearing limit and buffer boundaries. Clearing limits are depicted on Drawing L1.1. AOA shall review and approve flagging prior to any vegetation removal.

Contractor shall be responsible for avoiding disturbance to any significant trees and native shrubs located outside the clearing area. No removal of any native vegetation shall occur without prior approval by AOA. Contractor shall exercise care to protect from injury to trunk, roots, or branches, of any trees or shrubs that are to remain. Any living woody plant that is damaged during construction shall be treated within 24-hours of occurrence. AOA shall be notified immediately of incident. Wound shaping treatment shall be done. Wound shaping includes, but is not limited to: evenly cutting broken branches, exposed roots and damaged tree bark immediately after damage occurs. Injured plants shall be thoroughly watered and additional measures shall be taken, as appropriate, to aid in plant survival.

EROSION CONTROL MEASURES

Contractor shall implement erosion control measure per the approved civil plan set, prior to any construction activity. Contractor shall maintain erosion control facilities until completion of construction. AOA to verify locations of erosion control measures prior to site clearing.

Site areas exposed during clearing and construction must be covered with wood chip mulch (maximum depth of straw to be 3"), erosion control netting, plastic sheeting, or permanent erosion control within 48 hours of disturbance on slopes steeper than 33 percent (3:1).

Contractor shall maintain erosion control measures during implementation of the mitigation plan. These measures shall remain in place until authorization is given by AOA for removal or location adjustment. It is the responsibility of the Contractor to remove all erosion control measures adjacent to sensitive areas when authorized by AOA.

As construction progresses and seasonal conditions dictate, erosion control facilities shall be maintained and/or altered as required by AOA to ensure continued erosion/sedimentation control.

Where possible, natural ground cover vegetation shall be maintained for silt control.

Contractor shall ensure that adjacent roads are maintained and clear of soil and/or other debris at all times during construction. Contractor shall comply with City Of Bellevue codes regarding street maintenance/cleaning during construction.

SITE LOGGING

During site logging, any non-marketable debris (small trees, branches, etc.) not being exported for sale shall be ground up into 1-4" wood chips for later use as mulch around planted trees and shrubs. Contractor shall determine stockpile location for ground up wood chips.

CLEAR AND GRUB

Contractor shall clear and grub areas of invasive plants from within the mitigation area taking care to preserve all existing native vegetation to remain. Within the mitigation areas, Contractor shall remove blackberry and other invasive species by hand, with minimal disturbance to the existing vegetation. Cleared and grubbed vegetation shall be exported from the site. Particular care must be given to ensure complete removal of tops and roots of any invasive/exotic plant species. Invasive/exotic plant species to be removed and treated in the mitigation area are: Scot's broom, English Ivy, Himalayan and evergreen blackberry, reed canarygrass, purple loosestrife, hedge bindweed (morning glory), Japanese knotweed, thistle, English holly and creeping nightshade.

AOA to designate any additional plant species to be removed/treated prior to construction.

PLACE IMPORTED TOPSOIL

Upon completion of clearing and grubbing of non-native vegetation, DeJung's Fertil-Mulch, shall be placed within the mitigation area to pre-clearing grades. AOA shall review mulch placement prior to installation of plant material.

Upon installation of topsoil, cover all exposed steep slopes with 1/2" jute matting - install per manufacturer - prior to planting and mulching.

SOIL STABILIZATION

If there is a delay in construction for any reason, Contractor, unless otherwise stated in writing, shall be responsible for maintenance of erosion control measures, drainage and temporary drip irrigation during construction delay period.

WARRANTY

Contractor shall ensure that construction related activities do not damage off-site features or adjacent vegetation. AOA shall be notified immediately if accidental damage occurs.

Contractor shall ensure that adjacent roads are maintained and clear of soil and/or other debris at all times during construction. Contractor shall comply with the City Of Bellevue codes regarding street maintenance/cleaning during construction.

Any changes or modifications to this plan must receive prior approval from AOA.

PART 2 - PLANTING

GENERAL CONDITIONS

Contractor shall verify that plant installation conditions are suitable within the mitigation area. Any unsatisfactory conditions shall be corrected prior to start of work. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, significant vegetation, or obstructions, Contractor shall notify AOA prior to planting. Beginning of work constitutes acceptance of conditions as satisfactory.

Plants installed in undisturbed areas shall be integrated with existing native vegetation, and planted in a random, naturalistic pattern.

CONTRACTOR TO VERIFY PLANT SCHEDULE WITH PLAN

Contractor is responsible to verify plant locations and quantities of plants on the Plant Schedule with those represented on the plan.

Actual plant quantities shown on plans are to prevail over quantities shown on the Plant Schedule in the event of a discrepancy.

LOCATE/STAKE/VERIFY PLANTING AREAS

Contractor shall field locate, stake, and verify planting areas and configurations prior to planting. AOA shall review and approve locations prior to planting.

APPROVE PLANTING LOCATIONS AND SPACING

Planting locations shown on planting plans are approximate, based on anticipated site conditions. Actual planting locations may vary from those shown due to final site conditions and locations of existing vegetation. Nevertheless, any variations from the planting plan will require prior approval by AOA.

Plant spacing for species listed is to be random (naturalistic), and not in a regular grid pattern. On-center spacing called out on plant list indicates an average spacing dimension. For example, when the plan calls for 36" O.C., spacing shall vary from 30"-42" O.C., with an average spacing of 36 inches.

AOA shall review planting locations and spacing prior to plant installation.

PART 3 - PLANT MATERIAL STANDARDS

PLANT MATERIALS

AOA shall examine plant material prior to planting. Any material not meeting the required specifications shall be immediately removed from the site and replaced with like material that meets the required standards. Plant material shall meet the requirements of State and Federal laws with respect to plant disease and infestations. Inspection certificates, required by law, shall accompany each and every shipment and shall be submitted to AOA upon Contractor's receipt of plant material.

Plant materials shall be locally grown (western WA, western OR, or western BC), healthy, bushy, in vigorous growing condition, and be guaranteed true to size, name, and variety. If replacement of plant material is necessary due to construction damage or plant failure within one year of installation, the sizes, species, and quantities shall be equal to specified plants, as indicated on the plans.

Plants shall be nursery grown, well-rooted, of normal growth and habit, and free from disease or infestation. AOA reserves the right to require replacement or substitution of any plants deemed unsuitable.

Shrubs shall have a minimum of three stems and shall be a minimum height of 18 inches. Trees shall be 2 gallon.

Contractor shall submit documentation that specified plant materials have been ordered and secured. A list of supplier names, addresses, phone numbers and the storage/growing location of the materials shall be submitted to AOA within 30 days of contract award.

SUBSTITUTIONS

Substitutions of specified plant species, size, or condition will be allowed only if prior written approval is obtained by AOA and regulatory agencies prior to ordering material.

VERIFY NURSERY STOCK CONDITION

AOA shall inspect plant material at the job site, including previously tagged trees, for compliance with required standards for plant size and quality prior to planting. This includes, but is not limited to, size and condition of rootballs and rootsystems, presence of insects, latent injuries and defects. Trees must be untied and separated for inspections. AOA reserves the right to refuse any/all plant material any time prior to final acceptance if it is determined that such material does not meet the specifications as described herein. Rejected material shall be immediately removed from project site.

VERIFY STORAGE SITE AND METHOD

Plants shall be stored in a manner necessary to support their horticultural requirements. Plant material stored on-site shall be protected from weather damage, construction activity and the public. Balled and burlapped material which cannot be installed immediately shall be "heeled-in" to prevent desiccation prior to planting. Rootballs shall be protected by covering with moist soil, wood chip mulch and watered as necessary.

Plant specimens shall be kept moist and shaded until the actual time of plant installation. Immediately after planting, soils in the planting area shall be saturated to prevent capillary stress.

PART 4 - PLANT INSTALLATION

SOIL PREPARATION/AMENDMENTS

Prior to installation of plantings, all construction debris and any other non-native material shall be removed from the mitigation area. Trees and shrubs shall be pit planted as shown in details on Drawings L3.1. A soil moisture retention agent (polymer) shall be included in planting backfill per manufacturer's specification (see General Planting Installation Notes on Drawing L3.1).

Planting pits shall be backfilled with a 30/70 mixture of imported, weed-free topsoil and the native soil from the planting pit.

MULCH

A 3" layer of wood chip mulch from ground on-site slash or imported large course bark mulch or hog-fuel shall be placed continuously throughout planting bed. Jute matting in all planting areas. 1/2" jute matting shall be placed prior to installation of plantings. Plantings shall be cut into jute and mulch shall be placed over the top of the jute matting. Jute shall be natural fiber, installed per manufacturer's specification.

PART 5 - IRRIGATION AND CLEAN UP

TEMPORARY IRRIGATION SYSTEM

Contractor shall design build an above ground temporary drip irrigation system capable of providing 1/2" of flow to each newly installed plant.

Client shall provide water and electricity for the system. Irrigation is required within the mitigation area for at least three growing seasons following planting to ensure adequate establishment of plant material.

The Maintenance Contractor shall be responsible to activate, winterize, maintain, and to continually verify adequate operation of the temporary drip irrigation system. System function (including electronic valve and controller function) shall be inspected for operation and full coverage of all planted areas during each maintenance visit. The system shall be repaired immediately if found to be damaged or malfunctioning.

The system shall be activated by June 15 and winterized by October 15. If hot dry weather occurs either before or after these dates, the irrigation system shall be activated earlier in the season or remain active later into the fall. During the first year after installation, the irrigation system shall be programmed to provide ½" of water every three days. Irrigation rates may be increased as necessary during prolonged periods of hot, dry weather to prevent plant mortality. During the second year after installation, irrigation shall be programmed to provide ½" of water once a week. However, if more than 10% of plant replacement occurs, watering rates will be maintained at a rate of ½" of water every three days for the duration of the monitoring period.

A chart describing the location of all installed or open zones and corresponding controller numbers shall be placed inside the controller and given to the Owner's representative.

The irrigation bid shall include a one-year warranty against defects in materials and workmanship from the date of final project acceptance. The warranty shall include system activation and winterization for the first year and immediate repair of the system if it is observed to be malfunctioning.

RESTORE EXISTING NATURAL OR LANDSCAPED AREAS

Existing natural or landscaped areas that are damaged during construction shall be restored to their original condition, unless improvements or modifications are specified for those areas.

CLEAN-UP

Contractor shall be responsible for the removal of construction materials and debris on the site following installation of plant materials.

PART 6 - FINAL ACCEPTANCE

PLANT WARRANTY

Contractor's warranty shall include replacement of plants (same size and species shown on the drawings) that prove either to be misplaced or unsuitable as to plant material standards. Except for loss due to excessively severe climatological conditions (substantiated by 10-year recorded weather charts), installed plant materials are required to be guaranteed for one year against defects and unsatisfactory growth, except for cases of neglect by Owner or abuse/damage by others. Plants replaced shall be reinitiated under plant guarantee conditions.

Any changes or modifications to this plan must receive prior approval from AOA.

FINAL ACCEPTANCE

Upon completion of planting, the Contractor shall provide AOA with a set of clearly marked prints designating the actual locations of plantings within the mitigation area. Contractor shall keep a complete set of prints at the job site during construction for the purpose of "red-lining" changes or modifications to the approved plans and shall update said information on a daily basis.

AOA shall approve planting locations. If items are to be corrected, a punch list shall be prepared by AOA and submitted to the Contractor for completion. After punch list items have been completed, AOA shall review the project for final acceptance of plan implementation.

The date of final acceptance shall constitute the beginning of the one-year plant guarantee period.

MAINTENANCE

Contractor shall review landscape maintenance recommendations with a qualified wetland biologist from AOA who is familiar with the stated goals and objectives of the mitigation plan.

Contractor shall maintain trees and shrubs, as needed, for a period of one year from final acceptance, to maintain healthy growth and habitat diversity, including a) tighten and repair tree stakes, b) reset plants to proper grades and upright positions, and c) correct drainage problems as required.

Contractor shall be responsible for watering plants immediately upon installation, and again over the entire planting area upon completion of landscape installation. Irrigation is required within the wetland mitigation area(s) for at least three growing seasons following planting to ensure adequate plant establishment.

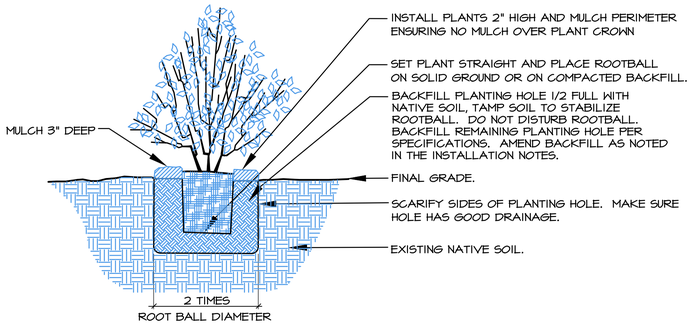
Contractor shall remove tree stakes and guy wires two years after installation unless receiving written permission from AOA to remove stakes and guy wires one year after installation.

Contractor shall correct erosion and drainage problems as required.

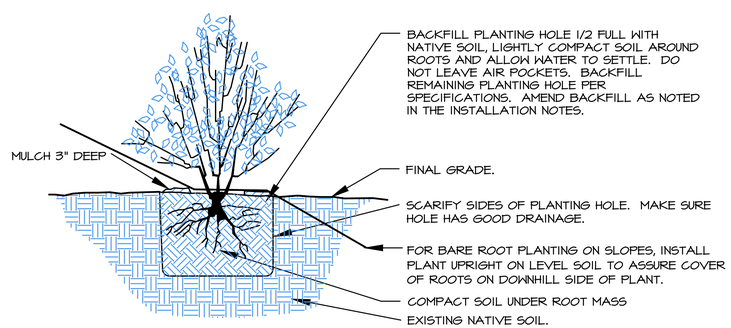
Contractor shall remove silt fencing upon receiving written permission to do so by AOA, usually one year after the Agencies have approved the mitigation construction. Restore the area by hand seeding with seed mix consistent with that used on adjacent planted areas.

Contractor shall remove irrigation system 3-years after planting.

Upon completion of the one year maintenance, an inspection by AOA shall be conducted to confirm that the mitigation area was properly maintained. If items are to be corrected, a punch list shall be prepared by and submitted to the Contractor for correction. Upon correction of the punch list items, the project shall be reviewed by AOA for final closeout of plan implementation.



1 CONTAINER TREE/SHRUB PLANTING (TYP.)
SCALE: NTS



2 BARE-ROOT TREE/SHRUB PLANTING (TYP.)
SCALE: NTS

AOA
Altmann Oliver Associates, LLC
Environmental Planning & Landscape Architecture
PO Box 576 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

STATE OF WASHINGTON
REGISTERED LANDSCAPE ARCHITECT
SIMONE CATHERINE OLIVER
CERTIFICATE NO. 744
EXPIRES 6/25/18

SPECIFICATIONS & DETAILS
PARK & RIDE CKC CONNECT
KIRKLAND, WASHINGTON

Revisions	Date	By

Date 09-15-17
Scale
Project# 4529

Sheet # L4.1

GeoDesign Inc

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

City of Kirkland
South Kirkland Park and Ride CKC Connection
Kirkland, Washington

For
KPG, Inc.
August 10, 2017

GeoDesign Project: KPG-34-01

GEODESIGN INC

August 10, 2017

KPG, Inc.
753 9th Avenue North
Seattle, WA 98109

Attention: DJ Dean

Revised Report of Geotechnical Engineering Services
City of Kirkland
South Kirkland Park and Ride CKC Connection
Kirkland, Washington
GeoDesign Project: KPG-34-01

GeoDesign, Inc. is pleased to submit this revised report of geotechnical engineering services to support design and construction of an ADA-compliant multi-modal connection between the King County's new South Kirkland public parking garage and the Cross Kirkland Corridor trail located in Kirkland, Washington. We have revised the report to include elements associated with the City of Bellevue Land Use Code 20.25H with regards to geologic hazard areas. This report has been prepared in accordance with discussions and our scope and fee estimate outlined in our proposal dated February 18, 2014. Our proposal was approved and included in the subcontractor agreement dated March 27, 2014.

We appreciate the opportunity to be of service to you. Please contact us if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

Kevin J. Lamb, P.E.
Principal Engineer

TAP:KJL:kt
Attachments
One copy submitted (via email only)
Document ID: KPG-34-01-081017-geor-rev.docx

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1.0 INTRODUCTION

This report presents the results of GeoDesign's geotechnical investigation to support design and construction of an ADA-compliant multi-modal connection between King County's South Kirkland public parking garage and the CKC trail in Kirkland, Washington. The location of the site relative to surrounding physical features is shown on Figure 1. Acronyms and abbreviations used herein are defined at the end of this document.

The South Kirkland parking garage is located northwest of the intersection of 108th Avenue NE and NE 38th Place, and the Bellevue-Kirkland city boundaries extend through the garage and surrounding property. North of the garage a steep slope extends up to the CKC trail that follows the relatively level former railroad right-of-way. The ground surface adjacent to the northwest corner of the garage is approximately 60 feet lower in elevation than the CKC trail. The site is located adjacent to the northwest corner of the parking garage and includes the steep slope area that extends up to the CKC. The site is within the City of Bellevue.

We understand that the project will consist of a tower adjacent to, but not connected to, the parking garage and a sloped ADA-compliant bridge that extends from the tower to the CKC right-of-way. The south end of the bridge will be supported by the tower structure and the north end will be supported on a foundation constructed at the top of the slope.

Constraints on locating the bridge foundation at the top of the slope are an existing fiber optic line and the King County Eastside CSO that is located between the trail and the top of the slope. The slope meets the definition for and is classified by the City of Bellevue as a "Steep Slope Geologic Hazard Area."

2.0 PURPOSE AND SCOPE OF WORK

The purpose of this study was to gather and review available subsurface information, conduct field explorations to evaluate subsurface conditions at the site, and to provide geotechnical conclusions and engineering recommendations for the proposed pedestrian bridge. Our scope of work included conducting a site reconnaissance, drilling and sampling a single deep boring, performing laboratory testing, and completing engineering analyses to develop the geotechnical conclusions and recommendations presented in this report. Specifically, we performed the following:

- Collected and reviewed readily available geotechnical and geologic data for the project area.
- Coordinated and managed the field investigation, including public utility locates and scheduling contractors and GeoDesign staff.
- Completed one boring to a depth of 61.0 feet BGS to evaluate the soil at the site.
- Performed engineering analysis and evaluated data derived from the subsurface investigation.

GeoDesign's scope of work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil.

3.0 REVIEW OF EXISTING INFORMATION

We reviewed the following documents that provided additional geotechnical-related information on the site and existing structures:

- Geotechnical Report: Earth Solutions Northwest, LLC, *Geotechnical Engineering Study; South Kirkland P&R; Transit Oriented Development; Kirkland, Washington,* dated January 23, 2012
- Construction Drawings, As-Builts, dated September 13, 2013, Structural and Civil Sheets

Pertinent information from the geotechnical report is summarized as follows:

- Subsurface conditions within the garage area generally consist of dense, silty sand with trace gravel and occasional sand lenses. Saturated soil and groundwater seepage was noted in sand lenses at a depth of approximately 12 feet BGS (elevation 106 feet in boring B-3) and was under approximately 4 to 8 feet of hydraulic head.
- Groundwater was indicated to be expected in site excavations.
- Recommendations addressing foundation support recommended supporting foundation on undisturbed, glacially consolidated material and should be designed using an allowable bearing pressure of 8,000 psf.

Pertinent geotechnical-related information from the construction plans is summarized as follows:

- The parking garage is supported on shallow foundations designed with an allowable bearing pressure of 8,000 psf.
- The foundation at the northwest corner is 4.5 feet square, 20 inches thick, and the bottom of footing is 32 inches below the top of the floor slab (Construction Drawing Sheet S2.00).
- The lower portion of the north wall of the garage is a retaining wall.
- Storm drain utilities are routed through the proposed tower location at the northwest corner of the garage. Excavation to depths of approximately 4 feet below the existing grade was required to install the storm utilities (Construction Drawing Sheet 1, SvASBUILTpygn00000019.dwg, dated January 28, 2014.

4.0 SITE CONDITIONS

4.1 GENERAL

The South Kirkland public parking garage is located northwest of the intersection of 108th Avenue NE and NE 38th Place in Kirkland, Washington. The site includes the area adjacent to the northwest corner of the parking garage and extends northwards up a steep slope to the CKC right-of-way. Surficial conditions were determined from observations during multiple visits to the site, and subsurface conditions were evaluated by completing one boring exploration.

4.2 SURFACE CONDITIONS

The site includes the developed parking garage and associated surface parking area, the undeveloped steep slope area, and the relatively level CKC trail right-of-way. The site area adjacent to the garage includes hardscape areas composed of PCC sidewalk and asphalt pavement. A rockery, approximately 6 feet in height, extends from the northwest corner of the

garage along the toe of the slope through the project area. The slope above the rockery is moderately vegetated with trees and brush that thins towards the top of the slope. At the top of the slope the ground surface has been graded so that it slopes back towards a shallow drainage swale that parallels a gravel-surface road along the west side of the CKC trail. East of the service road the ground surface generally slopes up approximately 4 to 5 feet to the CKC trail, which has recently been surfaced with crushed rock.

Based on utility locate markings, the King County Eastside CSO is located along the west side of the surface road. According to the utility locator, the crown of the pipe is at a depth of approximately 8 feet below the service road.

The CKC trail is approximately 50 feet higher in elevation than the ground floor of the parking garage.

4.2.1 Steep Slope Geologic Hazard Areas

The City of Bellevue online GIS database indicates the slope between the parking garage and the CKC trail is a steep slope environmental critical area. A "Steep Slope Geologic Hazard Area" is defined as slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area. Based on our review of the topographic maps and site reconnaissance, we confirmed that the area is of sufficient size and exceeds the vertical elevation criteria to be classified as a "Steep Slope Geologic Hazard Area."

We evaluated geological characteristics of the site by reviewing published geological maps and geotechnical engineering reports and conducting a reconnaissance of the site that included a soil boring at the top of the slope. The geological map, previous borings, and our subsurface exploration confirm that the area and the slope is composed of dense, glacial outwash material consisting of interbedded lenses to layers of silty sand with gravel to sandy gravel with varying silt content.

Geologic maps do not indicate any landslides in the immediate area and ground morphology in LiDAR imagery of the site does not contain features indicative of landslides. Evidence of slope instability was not observed on the undeveloped steep slope area between the parking garage and the CKC right-of-way. The slope inclination is generally in between 50 and 60 percent and approximately 40 to 50 feet in height. The surface of the slope is fairly regular, indicating that it has likely been modified by past grading activities.

The steep slope extends to the west and east of the project area, and the site reconnaissance did not identify any evidence or indications of slope instability in the adjacent areas.

A review of aerial imagery of the area indicates the slope was possibly re-graded for construction of the railroad line sometime after 1936. The consistent grade and regular topography of the slope also supports the conclusion of past re-grading activities, and as such the slope should be considered an engineered slope.

We did not observe indications of slope instability on or adjacent to the project area.

4.3 SUBSURFACE CONDITIONS

We reviewed the geotechnical report for the existing park and ride and completed one soil boring at the top of the slope to develop an understanding of the subsurface conditions near the proposed tower structure, at the base of the slope, and at the top of the slope where the proposed bridge will be supported.

Subsurface conditions were explored near the proposed location of the north side of the walkway by drilling one boring (B-1) to a depth of 61.0 feet BGS. The exploration location is shown on Figure 2. Descriptions of the field exploration and the exploration log are included in Appendix A.

Borings B-2 and B-3 were completed by Earth Solutions Northwest for the parking garage geotechnical investigation. The site plan showing these boring locations and the exploration logs are presented in Appendix B. Subsurface conditions encountered within the borings were similar and consist of silty sand to sand with silt that is typically medium dense near the ground surface and increases to dense to very dense with increasing depth.

Subsurface conditions encountered in boring B-1 drilled at the top of the slope consist of a layer of medium dense, silty sand with gravel overlying very dense, silty sand with gravel and very dense sand (Glacial Outwash). The medium dense soil extends to a depth of approximately 4.5 feet BGS.

Glacial outwash was encountered throughout the depth of the boring. The glacial outwash consists of interbedded layers of silty sand with gravel and cobbles and sand with trace silt and gravel. The outwash is very dense based on SPT blow counts.

4.4 GROUNDWATER

The previous borings (B-2 and B-3) completed for the park and ride encountered perched water and groundwater. Groundwater encountered at depths of 34 feet BGS in B-2 and 20 feet BGS in B-3 was reported to be under excess hydrostatic pressure, meaning that the water level rose in the borehole after being encountered. Boring B-1 completed at the top of the slope encountered a wet saturated zone near at the bottom of the boring at a depth of approximately 60 feet BGS. Due to the mud rotary drilling method, groundwater level measurements could not be completed in the boring.

Groundwater conditions encountered during drilling completed in the parking garage area and in boring B-1 are summarized in Table 1.

Table 1. Summary of Groundwater Conditions

Boring	Depth (feet BGS)	Elevation (feet)
B-1 (Top of Slope)	60	102
B-2 (Parking Garage)		
Perched Water	20	88
Groundwater	34	73
B-3 (Parking Garage)		
Perched Water	12	106
Groundwater	20	98

4.5 SEISMICITY

Washington State is situated at a convergent continental margin and is susceptible to subduction zone, intraplate, and shallow crustal source earthquakes. We reviewed published geologic maps for the site vicinity (Johnson et al., 1999; Sherrod et al., 2004) to evaluate seismic hazards. The site is approximately 2 miles north of the SFZ, which is a result of shallow crustal faulting.

The SFZ represents a 2- to 4-mile-wide zone, extending from the Kitsap Peninsula near Bremerton to the Sammamish Plateau. Within the SFZ are several east- to west-trending fault splays of the Seattle Fault (Johnson et al., 1999). The Seattle Fault is thought to be a reverse fault, with the south side "shoved up." The SFZ is considered an active major fault and is capable of producing earthquakes of Magnitude ~7 with associated surface rupture and ground motions, posing a significant hazard to the Puget Sound Region (Sherrod et al., 2004). Geologic evidence indicates at least three episodes of movement on the fault within the last 10,000 years, with the most recent earthquake with surface rupture approximately 1,100 years ago (Nelson et al., 2000).

5.0 GEOLOGIC HAZARD CRITICAL AREA CONSIDERATIONS

As indicated in the "Steep Slope Geologic Hazard Areas" section above, the slope area between the garage and CKC trail is classified as a "Steep Slope Geologic Hazard Area," which extends to the east and west from the proposed area. The upper portion of the slope will be disturbed by grading activities during bridge construction. The following information, together with the information presented in the "Steep Slope Geologic Hazard Areas" section, should address the requirements of development within Steep Slope Geologic Hazard Areas in accordance with the City of Bellevue Ordinance 5680 and City Code Part 20.25H Critical Areas Overlay District (City of Bellevue, 2017).

LUC 20.25H.055.C.2 New and Expanded Uses or Development

The proposed bridge structure will provide ADA access to the CKC from a tower constructed adjacent to the King County/Sound Transit Commuter parking garage. It will be necessary to construct the foundation to support the bridge within the existing engineered steep slope area due to structural limitations, the span length of the bridge, and the existing infrastructure located at the top of the slope (Eastside CSO and fiber optic utilities).

The proposed area of disturbance where site grading and foundation construction will take place is approximately 1,200 square feet in size and is limited to the upper portion of the slope. Disturbance at the top of the slope within the Steep Slope Critical Area and impacts are discussed below will be limited to the following:

- Grading the top of the slope to lower the height of the slope is necessary to decrease the required tower height, stay in conformance with ADA standards with regards to the slope of the bridge, and the slope of the path that connects the bridge to the CKC. This will include removal of an engineered berm along the top of the slope that was created by past grading activities. The proposed limited site grading at the bridge abutment will improve slope stability at the bridge by decreasing the height of the slope and will allow construction of the connector path that meets the ADA-required grades. Alternative connector path alignments created more disturbance within the critical area buffer.

- Construction of foundation elements to support the bridge. Deep foundations consisting of drilled shaft foundations are being used to mitigate impacts to the slope so that loads are not applied to the slope surface and impacts to slope stability are avoided.

- Construction of hardscape path to connect the end of the bridge to the CKC trail. We anticipate that grading for hardscape areas would allow for sloping and managing stormwater to prevent surface water from flowing over on onto the slope.

Typical BMP measures will be sufficient to address the ground disturbance during construction. Post-construction landscaping elements along with appropriate temporary erosion and sediment control measures will sufficiently mitigate ground disturbance and will provide permanent stabilization of the surficial soils. Possible temporary impacts could include potential erosion and sedimentation downslope from cleared areas, but can be effectively managed/mitigated with appropriate BMPs. We anticipate BMPs that include grading, sediment fencing, wattles, straw, and jute matting will adequately control erosion and sedimentation within the disturbed area.

The proposed site grading will not significantly impact the identified critical areas on the site or on adjacent properties. The proposed bridge foundations, if configured as recommended in this report, will not impact slope stability. Overall, the proposed project will result in a beneficial cumulative effect on the adjacent critical areas, primarily through reduction in the height of the slope.

There are no long-term significant impacts or changes to the level of protection of the existing critical areas by the proposed construction activities. We anticipate new surface water control features and stormwater quality improvement systems and detention will be included in the new development, which will increase stability of the critical areas by managing stormwater runoff and prevent some of it from infiltrating into the soil at the top of the slope, which decreases stability.

LUC 20.25H.120 Designation of Critical Area and Buffers

Geologic hazard buffer areas prescribed by LUC 20.25.120, B are 50 feet at the top of the slope and for structures at the toe of the slope the structure setback is 75 feet. We propose modifying

the code-required buffer and structure setback in accordance with LUC 20.250.120, LUC 20.250.140, and LUC 20.25.230 to allow for construction within the steep slope area.

The drilled shaft foundations and sidewalk trails to the bridge abutment can be constructed on the steep slope area without significantly impacting slope stability as indicated by slope stability analyses, site reconnaissance to confirm existing conditions, and borings to confirm the dense nature of soils underlying the site.

The proposed development includes grading activity at the top of the slope. We recommend revising the code-recommended critical buffers to allow for construction of the bridge foundation at the top of the slope and the tower structure adjacent to the parking garage.

We understand the foundations for the tower structure at the toe of the slope will be in line with and adjacent to the existing parking garage. Shoring will be used to support construction at the toe of the slope. Foundations should be set back from the toe of the shoring or existing rockery a horizontal distance of 6 feet.

Near the top of the slope the bridge foundation and abutment wall will be supported on two drilled shafts located on the steep slope. A hardscape path will connect the bridge to the CKC. Grading will be required to construct the path and will result in removal of material from a man-made berm at the top of the slope.

The proposed work within the existing steep slope hazard area will not decrease the slope stability of the slope or decrease stability of adjacent properties or structures.

LUC20.25H.125 Performance Standards – Landslide Hazards and Steep Slopes
The proposed development does not include design elements or features that require regular or periodic maintenance.

The proposed bridge foundation elements are located near the top of the slope to minimize alterations to natural contours. The foundation elements and approach path have been located to minimize disturbance and reduce impacts to existing vegetation. The required grading results in a cut of approximately 5 feet that is supported by the bridge abutment wall and includes a cut through the existing man-made berm at the top of the slope. The permanent cut slopes through the man-made berm are at an inclination of 2H:1V, are limited in height up to approximately 5 feet, and are in accordance with our recommendations.

Slope stability analysis was completed to evaluate the impact of the proposed construction on the existing slope and is discussed in detail in the :Foundation Support – Drilled Shafts" section. The analysis indicates the existing slope has a minimum factor of safety of approximately 1.8 for critical slope failures varying from shallow to deep. The proposed construction includes deep shafts approximately 53 feet deep with primarily a vertical compressive load and minimal lateral component. Slope stability analysis of the post-construction conditions indicates a slight increase in the factor of safety to 1.97, likely due to grading and removal or soil at the top of the slope. The proposed construction will not result in greater risks or a need for an increased buffer on neighboring properties.

The proposed re-grading of the berm at the top of the slope, where cuts are required for the connecting path from the CKC to the bridge, uses slope inclinations that have adequate stability, are of limited height, and will be stabilized with ground cover and permanent vegetation.

With regards to mitigation, the proposed design and location of the bridge foundation and approach path minimizes the impact by limiting the degree or magnitude of the action in accordance with LUC 20.25H.215. We understand the landscape plan for the project will detail replanting and revegetation requirements of disturbed areas within the critical area. We anticipate the planting and revegetation of the disturbed areas will provide permanent stabilization and mitigate the construction impacts.

6.0 DESIGN RECOMMENDATIONS

6.1 GENERAL

Based on our review of available information, the development history of the site, and the results of our explorations and analyses, it is our opinion that the site is suitable for construction of the proposed tower structure and bridge.

- Shallow spread footing foundations bearing on a subgrade prepared as recommended below will provide adequate support for both the tower at the toe of the slope and for the bridge abutment at the top of the slope. Over-excavation and replacement of loose fill associated with the existing storm drain utility beneath the proposed tower area may be necessary to provide a stabilized base for supporting the tower foundations.
- Location of the new tower footings should be outside the zone of influence of the existing parking garage footings, which is typically a 2H:1V projection from the base of the existing footing.
- Location of the bridge abutment at the top of the slope should be outside the zone of influence of the Eastside CSO sanitary sewer, typically a projection of 2H:1V projection upwards from the pipe invert. It should also be set back from the top of the slope a distance equivalent to at least one-third the height of the slope, unless a detailed slope stability analysis is completed allowing a decreased setback.
- Deep foundations, consisting of drilled shafts, will also provide suitable foundation support for both the tower and bridge abutments and more easily avoid impacts associated with adjacent structures. Wet drilling conditions should be expected at the tower location.
- The tower floor slabs can be supported on grade provided the subgrade is prepared as recommended below.
- Permanent cut slopes associated with re-grading at the top of the slope should be sloped at 2H:1V, and surface grades should be sloped away from the top of the slope to prevent concentrated surface water from flowing over the slope.
- Near-surface soil consists generally of silty sand and will be susceptible to deterioration during wet weather. We anticipate that the on-site soil will be usable for fill during the dry summer months when moisture conditioning can be performed, provided deleterious materials are removed.

- We do not anticipate significant groundwater seepage will be encountered in excavations for foundations; however, zones of perched water may be encountered during excavation.
- The Puget Sound area is a seismically active region. The dense, glacially consolidated material underlying the site is not susceptible to amplified earthquake ground motions and is not susceptible to liquefaction or lateral spreading. We did not observe evidence of faults on site or on geologic maps of the area and have concluded that the probability of surface rupture is low. We have provided appropriate seismic design recommendations based on the 2012 IBC criteria.

Our specific recommendations and design guidelines for development of the site are presented in the following sections. These should be incorporated into the design and implemented during construction of the proposed development.

6.2 SEISMIC DESIGN CRITERIA

Moderate to high levels of earthquake shaking should be anticipated during the design life of the building, and it should be designed to resist earthquake loading in accordance with the methodology described in the 2012 IBC. The recommended seismic design parameters based on the 2012 IBC are presented in Table 2.

Table 2. IBC Seismic Design Parameters

Seismic Design Parameter	Short Period	1 Second Period
MCE Spectral Acceleration	S_s = 1.278 g	S_1 = 0.491 g
Site Class	C	
Site Coefficient	F_a = 1	F_v = 1.309
Adjusted Spectral Acceleration	S_{MS} = 1.278 g	S_{M1} = 0.642 g
Design Spectral Response Acceleration Parameters	S_{DS} = 0.852 g	S_{D1} = 0.428 g

Based on our subsurface exploration, literature review, and experience, a summary of the seismic hazards in the area and their associated impact at the site are as follows:

- **Amplification:** Areas subject to amplification are typically soft soil overlying stiff soil or bedrock. Based on the site explorations and available geologic maps, the site is underlain by glacially consolidated deposits. In our opinion, this material has a low potential for site amplification.
- **Liquefaction/Settlement:** Based on the results of the site explorations, the site is mostly underlain by dense glacial deposits, and groundwater was not observed above the dense, glacial deposit. In our opinion, the potential for liquefaction is low for the site.

- **Lateral Spreading:** Areas subject to lateral spreading are typically gently sloping or flat sites underlain by liquefiable sediments adjacent to an open face (such as riverbanks or bay fronts). Liquefied soil adjacent to open faces may "flow" in that direction, resulting in lateral displacement and surface cracking. There is no potential for the site to be affected by lateral spreading.
- **Fault Surface Rupture:** We did not find evidence of faults through the site or on maps of the area. We conclude that the potential for surface rupture at the site is low over the life of the structure.

6.3 FOUNDATION SUPPORT – SHALLOW SPREAD FOOTINGS

6.3.1 General

The undisturbed glacial deposits will provide adequate support for conventional shallow spread footings supporting the tower structure and bridge abutment. We anticipate that over-excavation may be necessary with the tower footprint to remove fill and native materials that have been disturbed as a result of utility installation and construction of the parking garage.

Where fill or disturbed native materials are encountered they should be excavated and removed to expose the dense native material. Over-excavations beneath foundation elements should be backfilled with lean-mix concrete. Over-excavations should also extend 6 inches laterally beyond the edges of the foundations for each foot excavated below the planned bottom of footing.

6.3.2 Dimensions and Capacities

Continuous and isolated spread footings should be at least 18 and 24 inches wide, respectively. The bottom of exterior footings should be at least 18 inches below the adjacent exterior grade for frost heave protection, and interior footings should be at least 12 inches below the top of the slab.

Foundations supported on the undisturbed, dense, silty sand with gravel or on a lean-mix concrete pad placed over the dense native material may be designed for an allowable bearing pressure of 6,000 psf. Alternatively, foundations may be supported on structural fill placed over the dense native soil and should be designed for an allowable bearing pressure of 3,000 psf.

This is a net bearing pressure; the weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads and may be increased by 50 percent for short-term loads, such as those resulting from wind or seismic forces.

6.3.3 Resistance to Sliding

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral loads on footings can be resisted by passive earth pressure on the sides of the structures and by friction on the base of the footings. An allowable passive resistance may be calculated as a triangular equivalent fluid pressure distribution, using an equivalent fluid density of 300 pcf, provided the footings are cast directly against properly placed and compacted structural fill and the footing is above the groundwater table.

Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance. For footings in contact with granular backfill, a coefficient of friction equal to 0.35 may be used. A safety factor of 1.5 has been applied to the recommended sliding friction and passive pressure.

6.3.4 Settlement

Based on our analysis, total post-construction static (consolidation-induced) settlement for conventional and semi-rigid foundation systems should be less than ½ inch, with differential settlement of up to ¼ inch.

6.3.5 Foundation Setbacks

We anticipate tower foundations will be in close proximity to the existing foundations supporting the parking garage. Unsupported excavations should not be conducted within a downward and outward projection of a 1H:1V line from 5 feet outside the edge of an adjacent structural feature.

Shallow foundations for the bridge abutment should be set back from the top of the slope a distance equal to one-third the height of the slope. Decreased setback distances are feasible but require slope stability analysis to evaluate impacts to the slope.

The Eastside CSO is located between the abutment location and the CKC trail and the crown of the pipe is believed to be at a depth of approximately 10 feet BGS. The actual location of the pipe should be confirmed prior to construction. Shallow foundations at the top of the slope should be placed outside the zone of influence associated with the sewer to avoid placing additional load on the pipe and so that they do not inhibit future utility excavation. A 2H:1V line sloped upwards from the invert of the pipe can conservatively define the zone of influence outside of which footings may be located.

6.4 FOUNDATION SUPPORT - DRILLED SHAFTS

6.4.1 General

Drilled shaft foundations will also provide suitable foundation support of both the tower and bridge abutments. The shafts will be completed in the dense, glacial deposits of silty sand and gravel underlying both locations. Drilled shaft foundations will derive compressive bearing capacity from side friction and primarily through end bearing in the dense, glacial soil. We recommend the shafts supporting the tower structure be a minimum of 18 feet in length.

6.4.2 Axial Capacity

We have performed axial capacity analyses of drilled shafts with 36-inch and 48-inch diameters using the soil conditions encountered in the borings and with groundwater elevations at the time of drilling. Figures 3 through 6 provide axial downward and uplift capacity profiles for 36- and 48-inch-diameter cast-in-place concrete piles for shafts located at the bridge abutment and tower structure. The allowable capacity is based on a safety factor of 3 in compression and 3 for uplift.

Settlement of drilled cast-in-place concrete foundations established in competent bearing material is anticipated to be equal to the elastic compression of the shaft.

6.4.3 Lateral Capacity

Based on correspondence with Ichiro Ikeda with Bright Engineering, we understand 36-inch-diameter drilled shafts will be used to support both the upper and lower abutments. Each abutment will include a single row of two shafts that are spaced approximately 3 pile diameters apart (center-to-center). Mr. Ikeda requested that GeoDesign complete lateral drilled shaft analysis for the scenarios presented in Table 3.

Table 3. Requested Loading Combinations for Lateral Drilled Shaft Analysis

Abutment Location	Shaft Type	Shaft Diameter (inches)	Shaft Length (feet)	Axial Load (kips)	Horizontal Load (kips)	Applied Moment (kip-feet)	Steel Reinforcement (percent)	Concrete Strength (psi)
Top of Hill	Free Head	36	40	20 to 60[1]	12[3], 20[4], 24[5]	28.8	1.0	4,000
Bottom of Hill	Fixed or Free	36	55	-210 to 368[2]	47[4]	0	1.0	4,000

1. Analysis results were equal with 20 and 60 kips of axial load so only a load of 60 kips was used in analysis.
2. Represents the maximum and minimum of the combined gravity (38 to 120 kips) and earthquake (248 kips in compression or tension loads).
3. Horizontal load
4. Earthquake load
5. Resultant of horizontal and earthquake loads

We completed lateral capacity analyses for the requested conditions shown in Table 3 using the software program LPILE 6.0. The analysis was completed using the LPILE soil parameters described in Table 4.

Table 4. LPILE Soil Parameters Used in Analysis – Static Condition

Soil Conditions	Soil Model (LPILE 6.0)	Depth at Top (feet)	Depth at Bottom (feet)	γ' (pcf)	Friction Angle (degrees)	K (pci)
Dense Sand – Glacial Till (above water table)	Sand (Reese)	0.0	23	125	38	90
Very Dense Sand – Glacial Till (above water table)	Sand (Reese)	23	55	130	40	175

Because the spacing of the shafts are less than 5 pile diameters on-center, group action was considered when loading was parallel to the abutment. This was accomplished by using P-Multipliers provided in Table 5. We note that group action was not considered where the loading was perpendicular to the abutments.

Table 5. Lateral Capacity Reductions for Closely Spaced Shafts

Pile Center to Center Spacing	Row 1	Row 2
3B	0.85	0.65

The results of the lateral analysis are presented in Appendix C.

6.4.4 Slope Stability Impacts

Two drilled shafts will be used to support the bridge structure and will be constructed within and near the top of the steep slope area. Grading to establish access will be required.

The foundations on the slope will likely consist of two 36-inch-diameter drilled shafts with a design length of approximately 60 feet. A shallow bench will be excavated into the slope and the shafts will be set back approximately 4 feet from the edge of the slope. We reviewed Structural Plan Sheets S100 and S200 of the Permit Set and discussed the loading with the structural engineer. We understand the drilled shaft supporting the northeast end of the bridge abutment will not be subject to significant lateral loads and loading is primarily compressive around 100 kips.

We completed slope stability analyses to evaluate the impact of the proposed drilled shaft foundation on the existing slope. Two-dimensional limit equilibrium slope stability analyses were completed in order to evaluate impacts of the proposed foundations on the slope. The analyses were performed using the slope stability analysis software program Slope/W (version 8.15.5.11777) by Geo-Slope International, Ltd. The software has a graphic-user interface for defining the slope geometry, inputting soil parameters, and defining the search limits for the entry and exit points of the failure surfaces. The program performs two-dimensional limit equilibrium analyses to compute the factor of safety for failure surfaces located within the search limits defined by the user. Factors of safety were calculated using the Morgenstern-Price method, which satisfies both moment and force equilibrium.

Soil parameters used in the slope stability analyses are based on conditions encountered in the subsurface exploration completed at the top of the slope and our experience. The slope is composed of very dense glacial drift material. A friction angle of 38 degrees, a cohesion value of 300 psf, and a unit weight of 125 pcf were used to model soil strength and density, respectively.

The factor of safety against slope failure is defined as the ratio of the forces resisting slope movement (i.e., soil strength, soil mass, etc.) to the forces driving slope movement (i.e., gravity, water pressure, earthquake shaking). The program estimates the location and geometry of "critical failure surfaces" within the user-defined search area. Critical failure surfaces are those failure surfaces with the lowest factors of safety and define the path of the failure surface through the subsurface material. A factor of safety less than 1.0 indicates that the slope is not stable and is likely to fail along the modeled failure surface. Engineered slopes are typically designed with a minimum factor of safety under static loading conditions of approximately 1.3 to 1.5. Factors of safety were calculated using the Morgenstern-Price method, which satisfies both moment and force equilibrium.

The existing slope is estimated to have a factor of safety of approximately 1.8 (Figure 7). The factor of safety for the slope increases to 1.97 for post-construction conditions (Figure 8), with shafts constructed near the top of the slope and re-grading to establish access from the bridge to the CKC. The proposed drilled shaft foundations primarily have a compressive vertical load applied below critical failure surfaces so that it does not impact a driving or destabilizing force to the slope. The site grading reduces the height of the berm at the top of the slope, which results in an increase in slope stability.

6.5 SLOPE CUTS

6.5.1 General

We understand re-grading is planned at the top of the slope to remove a narrow berm and create a landing for the bridge. The berm is located on the southwest side of the Eastside CSO sewer. Cuts of up to approximately 6 feet are anticipated and are not expected to impact the sewer. Excavation cuts are expected to expose a thin layer of forest duff underlain by dense, glacial soil. Recommendations for temporary and permanent excavation slopes for these materials assuming that groundwater is not encountered are presented in the following sections.

6.5.2 Temporary Slopes

We recommend using the maximum inclinations for temporary slopes on site provided in Table 6.

Table 6. Maximum Temporary Slope Inclinations

Material	Recommended Temporary Slope
Forest Duff	2H:1V
Engineered Fill and Weathered Glacial Till	1.25H:1V
Undisturbed Glacial Till	1H:1V

At these inclinations, the some raveling may occur and require intermittent repair; plastic sheeting can be used to cover the temporary cut and help control/mange raveling. If seepage is encountered, it might be necessary to flatten the slopes to protect the surface from raveling. Cut slopes should be protected from erosion by covering them with plastic sheeting during the rainy season. If sloughing or instability is observed, the slope might need to be flatted or the cut supported by shoring. Temporary trench drains should be placed at the toe of temporary cuts to intercept groundwater seepage and surface water and to prevent water from entering the excavation.

Excavations should not undermine adjacent utilities, foundations, walkways, streets, or other hardscapes unless special shoring or underpinned support is provided. Unsupported excavations should not be conducted within a downward and outward projection of a 1H:1V line from 5 feet outside the edge of an adjacent structural feature.

Backfill placed to fill temporary cuts should be keyed into the exposed slope a minimum of 2 feet and the fill should be placed in horizontal benches.

6.5.3 Permanent Slopes

Permanent slopes will be constructed adjacent to the bridge landing at the top of the slope where it will extend through the berm. We recommend a maximum inclination of 2H:1V for all permanent slopes constructed in the materials encountered on site.

Slopes that will be maintained by mowing should not be constructed steeper than 3H:1V. Newly constructed fill slopes should be overbuilt by at least 12 inches and then trimmed back to the required slope to maintain a firm face.

Access roads and pavements should be located at least 5 feet from the top of cut and fill slopes. Slopes should be planted with appropriate vegetation to provide protection against erosion as soon as possible after grading. Surface water runoff should be collected and directed away from slopes to prevent concentrated water from flowing over the slope face.

6.6 RETAINING STRUCTURES

The rockery along the toe of the slope in the area of the elevator/stair tower will be removed to facilitate construction of the tower. We understand that the design team has a preference for a soldier pile wall system, either a cantilever or anchored (single row of tiebacks) system, depending on the retaining requirements.

Support for excavations less than approximately 10 feet deep and with a 2H:1V back slope can be provided by installing cantilever soldier pile shoring or can be constructed using a single row of tiebacks. Excavation cuts with a steep slope above the cut in excess of approximately 10 feet will generally require an active shoring system, such as a soldier pile wall with tiebacks.

The shoring should be designed for the full height of the slope cut plus an additional 1 foot to allow construction of a concrete trough behind the wall to collect surface water runoff from the slope and prevent it from infiltrating behind the wall. The shoring system should be designed in accordance with the recommendations provided below.

6.6.1 Lateral Earth Pressures

We have based our lateral earth pressure recommendations on the slope configuration that currently exists behind the rockery at the base of the slope. Based on our observations, the slope is inclined at an approximate inclination of 1.75 to 2H:1V. Groundwater seepage was not observed on the slope or the toe of the existing rockery and we recommend installing drainage panels to manage any incidental seepage. We have assumed drained soil conditions. We recommend that a cantilever system or a system utilizing a single row of tiebacks be designed to resist active lateral earth pressure based on the pressure distribution as shown on Figure 9.

An equivalent fluid density of 300 pcf should be used to estimate passive pressure against cantilevered or tieback soldier pile walls. Passive pressure should be applied over 2.5 pile diameters and the upper 2 feet of material should be neglected, as shown on Figure 9. The recommended equivalent fluid densities for passive resistance are unfactored and appropriate safety factors should be incorporated in the design of the shoring.

Static lateral earth pressures acting on walls should also be increased to account for seismic loading conditions. We recommend a seismic load increment of 6 times the height of the wall (6H in psf). This is based on a pseudostatic analysis using the Mononobe-Okabe equation for lateral earth pressure and one-half of the PGA value. A reduced PGA value is warranted as the PGA is experienced for a few short durations during an earthquake and the ground motion is cyclical.

The height of the wall used in the above equations should be measured from the finished ground surface in front of the wall to the top of the wall. The seismic pressure should be applied as a uniform rectangular pressure from the top of the wall to the elevation of the finished ground surface in front of the wall and the resultant should be applied at 0.6H of the exposed wall height.

For both the cantilever and tieback soldier pile wall we have assumed that the shoring will deflect into the excavation, resulting in settlement of the ground surface behind the wall. We anticipate that the settlement will become negligible at a distance of approximately 20 feet from the wall. The magnitude of the settlement will depend on the quality of construction, but with good construction practices, it should generally be less than 1 to 2 inches adjacent to the wall.

6.6.2 Soldier Piles

Soldier piles should be embedded to provide sufficient resistance against kick-out at the toe of the excavation; we anticipate a minimum embedment depth of 1.3 to 1.5 times the depth of the excavation will be required for cantilevered systems and less for using a row or tiebacks. Soldier piles are expected to be embedded into glacial till material. We recommend using factors of safety of 1.5 and 2.0 for design against overturning and kick-out, respectively.

Soldier piles embedded a minimum of 15 feet into undisturbed glacial till may be designed using an allowable end bearing pressure of 25 ksf, which includes a safety factor of 3. Shaft resistance below the base of the excavation can be designed using a side friction value of 0.70 ksf, which includes a factor of safety of 3. Side friction above the excavation base should be neglected.

6.6.3 Lagging

Lagging typically consists of treated timber planks or concrete panels. Permanent lagging should meet the specifications provided in WSS 9-09 – Timber and Lumber. Lagging should be installed and backfilled on newly excavated faces the same working day the face is excavated and should be designed to resist lateral earth and surcharge pressures. To account for soil arching effects, the lagging should be designed to resist 50 percent of the recommended lateral earth pressures. A geosynthetic drainage panel should be installed behind the lagging to prevent the buildup or hydrostatic pressures.

6.6.4 Tieback Anchors

We anticipate that the tieback anchors installed into dense glacial till will be capable of achieving an ultimate bond strength of between 2 and 5 ksf, depending on the method of construction. However, the contractor should be responsible for selecting the appropriate type of anchor, bonded length, and installation methods to achieve the required anchor capacity. The bonded

zone for the tieback anchors should be maintained outside of the "no load zone" show on Figure 9. Tieback anchors should be locked off at 100 percent of the design load.

Prior to installing production anchors, we recommend that performance tests be conducted on a minimum of two anchors. The purpose of these tests is to verify the bond strength used in design of the shoring and the installation procedure selected by the contractor before a large number of anchors are installed. Performance tests should be performed to 150 percent of the design load.

We recommend that proof tests be conducted on all production anchors. The anchors should be proof tested to at least 133 percent of the design load. We recommended that all of the anchor testing be completed in accordance with the guidelines provided in *Recommendations for Prestressed Rock and Soil Anchors* (Post-Tensioning Institute, 2014).

6.6.5 Surcharges

The lateral earth pressure values provided above and on Figure 9 do not include surcharge-induced earth pressures that would result from traffic, equipment, material stockpiles, or foundations adjacent to the wall. Given the slope above the wall location, we do not anticipate any surcharges will be applied.

6.6.6 Drainage

Groundwater was not observed on the slope or at the toe of the existing rockery. However, we recommend installing a geotextile drainage material behind the lagging elements to relieve any hydrostatic pressures that may develop over the life of the structure. The geotextile drainage panels should be attached to a header system at the base of the wall to collect water and route it out of the building area.

6.6.7 Construction Considerations

Installation of the soldier piles will require drilling adjacent to or against the face of the existing rockery, if it is left in place, or against and unsupported slope face if the rockery is removed. We recommend requiring temporary casing be used at each soldier pile location to maintain sidewall and slope or rockery stability. If the rockery is removed to facilitate pile installation, it should be removed in short sections ahead of the pile installation. Monitoring of the rockery should also be completed during drilling activities to identify potential unstable areas that could develop in the rockery as a result of construction.

6.7 CONCRETE SLAB ON GRADE

Satisfactory subgrade support for the tower floor slab at the existing site grade will require over-excavation to a depth of 12 inches below the bottom of the proposed slab, scarifying the exposed subgrade, and compacting it to a dense, unyielding condition. An 8-inch-thick layer of floor slab base rock should then be placed to establish the bottom of floor slab elevation. The floor slab base rock is defined in the "Fill Materials" section.

Where concrete slabs are designed as beams on an elastic foundation, the properly prepared subgrade should be assumed to have a modulus of subgrade reaction of 200 pci.

A vapor barrier product (such as Vapor Block BB-10 or VB-15) should be placed directly over the floor slab base rock. Edges of the vapor barrier, between adjoining pieces, should be properly sealed.

We recommend that exterior slabs, such as those for walkways, be structurally independent from the structure foundations. This will allow minor movement of the slabs to occur as a result of vehicular loading, tree root growth, seasonal soil shifting, and other factors, while reducing the potential for slab cracking around the perimeter. Interior slabs may be tied to the structure's foundation system.

6.8 IMPACTS TO EXISTING KING COUNTY EASTSIDE CSO

A bridge structure will extend from the upper floor on the north side of the parking garage over to the CKC. At the end of the bridge a short connector trail will be required to connect to the main CKC trail. The connector trial will cross over the existing King County Eastside CSO pipe that parallels the west side of the CKC. According to the public utility locate service, the Eastside CSO consists of an 84-inch-diameter, reinforced concrete pipe. The crown of the pipe is estimated between depths of approximately 7 to 10 feet based on utility locate service information.

We reviewed the proposed grading plans above and adjacent to the King County CSO sewer. We understand through discussions with the design team that:

- King County is concerned with grading activities above the pipe and the potential impact on the pipe integrity.
- The planned grading activity for the project above and adjacent to the King County CSO sewer will include cuts and fills that are generally less than 1 foot in height.

Soil conditions at the top of the slope and in the area of the pipeline generally consist of very dense glacial till and outwash that extends to the bottom of the boring at a depth of approximately 50 feet.

We anticipate the pipe has been properly bedded in accordance with manufacture requirements for concrete pipe and that it was backfill using native excavation spoils consisting of silty sand and gravel.

The existing overburden pressure on the pipe is estimated to be approximately 1,200 psf based on existing burial depth of approximately 10 feet and a typical moist soil density of approximately 120 pcf. Increasing the grade as proposed, by up to approximately 1 foot, will increase the overburden pressure by approximately 10 percent. The proposed increase in grade will not significantly impact the pipe and is likely in line with past grading activities associated with the service road that extends along and over the existing pipeline.

We recommend that during construction, settlement monitoring points be established on the pipeline to monitor the utility during construction. This can be accomplished by excavating down to the top of the pipe and epoxying a fiberglass rod on to the pipe. The fiberglass rod is

protected within a PVC conduit and both terminate near the ground surface within a flush-mount monument that allows regular survey measurements to monitor for movement.

In addition, if King County determines the pipe is susceptible to construction vibrations, such as those caused by vibratory compaction equipment, a vibration monitoring program should be required. The monitoring program is conducted during construction activities that cause significant vibrations. The program is performed to verify that vibration levels are below a specific threshold. A common vibration threshold for pipelines is 0.5 inch per second to minimize the potential for vibration-induced damage. We recommend consulting with King County to establish a specific velocity threshold for the pipeline.

As part of the design plans the area over the pipeline and within approximately 10 feet of it should be identified to avoid placing soil stockpiles or significant construction loads over the pipeline effective area.

7.0 SITE DEVELOPMENT

7.1 GENERAL

The proposed tower location is essentially developed with hardscape and landscape elements adjacent to the existing garage with an adjacent AC pavement parking area. Site preparation will generally include demolition of the existing improvement and site grading to the required subgrade elevations.

7.2 SITE PREPARATION

Site preparation includes activities that will be necessary to prepare the site for grading or fill placement in order to establish the required design ground surface elevations. These activities will include removing the existing improvements, such as utilities and pavement; removal of vegetation and undesirable material; and subgrade preparation. Recommendations for these activities are discussed below.

7.2.1 Removal of Existing Paving, Hardscape, and Utilities

We understand the existing improvements will be removed to prepare the site for construction of the tower structure and bridge. The existing improved surfaces (which include AC and PCC pavement) along with hardscape areas should be removed as necessary for construction. The removal of existing paving should be completed or scheduled so that it can be left in place during construction for as long as possible to protect the underlying subgrade from deterioration during wet weather.

Voids or depressions created during removal of existing structural or utility elements that are be below planned finish grades should be filled with material appropriate for the location (i.e., structural fill and within all building, pavement, and hardscape areas).

We anticipate the existing utilities within the proposed tower footprint will be abandoned and should be removed rather than filling. Excavations resulting from the removal of existing utilities should be backfilled and properly compacted in accordance with the appropriate specifications for the location.

7.2.2 Subgrade Preparation

Site grading should be completed to the required elevations. Based on the results of our review of the as-built documents, we anticipate medium dense fill up to approximately 5 feet deep will be encountered within the tower area. Over-excavation and replacement may be necessary in isolated areas to provide adequate support for the tower floor slab or foundations, as discussed in the "Foundation Support – Shallow Spread Footings" section.

Beneath hardscaped areas, we recommend scarifying the subgrade to a depth of 12 inches and compacting the subgrade to a dense, unyielding condition. The exposed subgrade should be proof rolled with a fully loaded dump truck or similar heavy rubber-tired construction equipment in the floor slab and paved areas to identify soft, loose, or unsuitable areas.

The exposed subgrade in improved areas should be compacted to 95 percent of the maximum dry density, as determined by ASTM D 1557. Soil moisture should be maintained within 2 percent of the optimum moisture content to achieve the required compaction.

It should be recognized that the exposed subgrade will consist of silty sand and gravel with a high fines content. The subgrade will be moisture sensitive and will deteriorate under construction traffic loading during wet weather.

7.2.3 Site Grading

Fill required to raise site grades in improved areas should consist of structural fill as defined in the "Fill Materials" section. The use of on-site excavation spoils as structural fill will be dependent on the material composition and weather conditions. We anticipate that some of the on-site material will be suitable for use but will be limited to use during the dry season. It will be prudent to provide an 18-inch-thick cap of imported structural fill over areas where on-site soil is used as fill to protect it against deterioration during wet weather.

Fill required to backfill over-excavations should consist of imported structural fill or stabilization material placed and compacted as recommended in the "Fill Materials" section.

Fill in unimproved areas, with slopes less than 3H:1V, may consist of common fill or on-site excavation spoils. Common fill placed in landscape or unimproved areas should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and compacted to not less than 90 percent of the maximum dry density, as determined by ASTM D 1557.

7.2.4 Subgrade Verification

Exposed subgrades should be evaluated by a representative from GeoDesign to verify conditions are as anticipated and will provide the required support. Where pavement or hardscape areas will be constructed, the exposed subgrade should be evaluated by proof rolling. The subgrade should be proof rolled with a fully loaded dump truck or similar heavy rubber-tired construction equipment to identify soft, loose, or unsuitable areas. Beneath foundations and during wet weather, subgrade evaluation should be performed by probing with a foundation probe. If soft or loose zones are identified, these areas should be excavated to the extent indicated by the engineer or technician and replaced with structural fill or stabilization material.

7.3 EXCAVATION

7.3.1 Shallow Excavation

The soil at the site can be excavated with conventional earthwork equipment. Excavations should stand vertical to a depth of approximately 4 feet, provided groundwater seepage is not observed in the trench walls.

Open excavation techniques may be used to excavate utility trenches with depths greater than 4 feet, provided the walls of the excavation are cut at appropriate cut slopes determined by the contractor. Approved temporary shoring is recommended where sloping is not possible. If a conventional shield is used, the contractor should limit the length of open trench. If shoring is used, we recommend that the type and design of the shoring system be the responsibility of the contractor, who is in the best position to choose a system that fits the overall plan of operation and the subsurface conditions. All excavations should be made in accordance with applicable OSHA, local, and state regulations.

7.3.2 Excavation Dewatering

Based on the parking garage geotechnical report, groundwater may be encountered in excavations extending below a depth of approximately 4 feet BGS. Zones of perched water may be encountered. We recommend that the contractor be responsible for selecting the appropriate temporary dewatering systems.

7.4 FILL MATERIALS

We anticipate fill material will be required for site grading, backfilling over-excavations, pavement support, installation of utilities, and drainage. The recommended fill materials are discussed below.

7.4.1 On-Site Soil

On-site materials encountered in the subsurface explorations include fill and glacial outwash materials, some of which have a high fines content and are sensitive to changes in moisture content and will deteriorate when exposed to wet weather.

We anticipate that some of the excavation spoils can be used as structural fill, provided construction is completed during the dry season, moisture conditioning is performed, and deleterious material (such as wood, organics, and man-made materials) are removed. The use of on-site soil as fill should be subject to review and approval by GeoDesign. During the wet season exposed native material will deteriorate. We recommend capping the on-site material with at least 12 inches of structural fill, hardscape base course, or stabilization material.

The on-site materials free of man-made materials and/or large woody debris may be used as common fill in non-structural areas, such as planter areas or unimproved areas.

7.4.2 Off-Site Recycled Fill Materials

Off-site generated recycled material should not be used on site without approval from the geotechnical engineer and the owner. The use of recycled material will be subject to performance criteria, gradation requirements, and hazardous material testing in conformance with WSS 9-03.21(1) – General Requirements. Recycled material is not recommended for use

beneath building foundations or floor slabs. Provided performance, gradation, and hazardous material testing results are acceptable, recycled material may be suitable for use beneath hardscape areas outside of the building footprint.

7.4.3 Structural Fill

Structural fill placed for general site grading in improved areas should consist of clean, free-draining granular soil (sand and gravel) that is free from organic matter or other deleterious and man-made materials, with a maximum particle size of approximately 3 inches and a maximum fines content of 5 percent by dry weight passing the U.S. Standard No. 200 sieve. The use of granular, free-draining material will increase the workability of the material during the wet season and the likelihood that the material can be placed and adequately compacted.

Imported granular material used for structural fill should be naturally occurring pit- or quarry-run rock, crushed rock, or crushed gravel and sand and should meet the specifications provided in WSS 9-03.14(1) – Gravel Borrow, with the exception that the percentage passing the U.S. Standard No. 200 sieve does not exceed 5 percent by dry weight. Structural fill should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

7.4.4 Common Fill

Fill placed in areas of the site where structural support is not required (such as planters and landscaped areas) is defined as "common fill." Common fill may contain a higher concentration of fines and organic matter than structural fill but should be free of man-made material. Imported common fill should meet the specifications provided in WSS 9-03.14(3) – Common Borrow. On-site material used for common fill should have an organic matter content less than 20 percent. Fill placed in non-structural areas should be compacted to a minimum of 90 percent of the maximum dry density, as determined by ASTM D 1557.

7.4.5 Hardscape and Pavement Base Course

Imported granular material used as aggregate base for pavements and beneath hardscape areas should consist of 1½-inch-minus material meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing, with the exception that the aggregate should have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve and at least two mechanically fractured faces. The imported granular material should be placed in lifts with a maximum uncompacted thickness of 12 inches and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

7.4.6 Trench Backfill

Trench backfill for utility trenches should consist of and be compacted in accordance with the specifications for structural fill in improved areas and for common fill in non-structural areas. Trenches within the right-of-way should be bedded and backfilled with 5/8-inch-minus crushed rock meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing. Trench bedding material should also consist of 5/8-inch-minus screened crushed rock meeting the specifications provided in WSS 9-03.9(3) – Crushed Surfacing.

7.4.7 Stabilization Material

Stabilization material to backfill over-excavations or to stabilize soft subgrade areas may consist of either:

- WSS 9-03.9(3) – Crushed Surfacing, have less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve, and have at least two mechanically fractured faces, or
- WSS 9-03.9(2) – Permeable Ballast, or
- WSS 9-13.7(2) - Backfill for Rock Wall

The initial lift of stabilization material used to fill over-excavations should be 18 inches thick and compacted to a firm condition. Successive lifts should be 12 inches thick and compacted to a dense, unyielding condition.

7.4.8 Drain Rock

Drain rock used in infiltration systems, subsurface drains, or against retaining walls should consist of granular material with a maximum particle size of 1 inch and should meet the specifications provided in WSS 9-03.12(4) – Gravel Backfill for Drains. The material should be free of roots, organic matter, and other unsuitable materials; have less than 2 percent by dry weight passing the U.S. Standard No. 200 sieve (washed analysis); and have at least two mechanically fractured faces.

7.4.9 Retaining Wall Select Backfill

Backfill material placed behind retaining walls and extending a horizontal distance of ½H, where H is the height of the retaining wall, should consist of select granular material that meets the specifications provided in WSS 9-03.12(2) – Gravel Backfill for Walls. We recommend the select granular wall backfill be separated from general fill, native soil, and/or topsoil using a geotextile fabric that meets the specifications provided in WSS 9-33.2 – Geosynthetic Properties for drainage geotextiles.

7.4.10 Floor Slab Base Rock

Imported granular material placed beneath building floor slabs should be clean, crushed rock or crushed gravel and sand that is fairly well graded between coarse and fine. The granular material should contain no deleterious material, have a maximum particle size of 1½ inches and less than 5 percent by dry weight passing the U.S. Standard No. 200 sieve, have at least two mechanically fractured faces, and should meet the specifications provided in WSS-9-03.9(3) – Crushed Surfacing. The imported granular material should be placed in one lift and compacted to not less than 95 percent of the maximum dry density, as determined by ASTM D 1557.

7.5 GEOSYNTHETICS

We recommend the use of geotextiles for stabilizing the base of over-excavations when wet or saturated soil conditions are encountered and as a separator between subsurface drainage materials and native materials or fill. The geotextiles should be installed in conformance with the specifications provided in WSS 2-12 – Construction Geosynthetic.

7.5.1 Stabilization Geotextile

We recommend using a woven geotextile stabilization material at the base of over-excavations and to stabilize the exposed subgrade beneath paved areas if construction is completed during the wet season. The geotextile should conform to the specifications for woven soil stabilization material provided in WSS 9-33.2(1) – Geotextile Properties, Table 3 Geotextile for Separation or Soil Stabilization.

7.5.2 Separation and Drainage Geotextile

We recommend using a non-woven geotextile drainage material around subsurface drains to separate drain rock from adjacent materials. The geotextile should conform to the specifications for non-woven separation material provided in WSS 9-33.2(1) – Geotextile Properties, Table 3 Geotextile for Separation or Soil Stabilization.

7.6 WET WEATHER CONSIDERATIONS

This section describes additional recommendations with potential budget and schedule impacts that may affect the owner and site contractor if earthwork occurs during the wet season. These recommendations are based on the site conditions and our experience on previous construction projects completed in the area.

- The near-surface soil is expected to consist of silty sand. The fines content of the material is high, and the soil will be susceptible to deterioration during wet weather. If construction is completed or extends into the wet season, we recommend stabilizing the areas of the site where construction traffic is anticipated using either a gravel working pad or cement-treated soil overlain with a 4-inch-thick layer of crushed rock. Additional BMPs will be necessary in cement-treated areas and to monitor/manage the pH levels in stormwater discharge.
- Site soil will not be suitable for use as structural fill during wet weather, and imported fill will be required. Imported fill will need to consist of non-moisture sensitive materials composed of sand and gravel or crushed rock materials.
- Earthwork should be accomplished in small sections to minimize exposure to wet weather.
- Excavation or the removal of unsuitable soil should be followed promptly by the placement and compaction of clean structural fill.
- The size of construction equipment and access to the area should be limited to prevent soil disturbance.
- The ground surface in the construction area should be sloped and sealed with a smooth-drum roller to promote rapid runoff of precipitation, to prevent surface water from flowing into excavations, and to prevent puddles from forming.
- The building pad should be surfaced with a 12-inch-thick gravel pad consisting of stabilization material as described in the "Fill Materials" section. This layer will help protect the pad from deterioration under construction traffic during wet weather. The protected area should also extend outwards from the building pad a sufficient distance to provide stabilized access for construction equipment around the perimeter of the building.
- Additional excavation below planned foundation subgrades should be anticipated in order to construct a 2-inch-thick lean mix concrete rat slab or to install a 6-inch-thick layer of crushed surfacing base course to protect the foundation subgrade from deterioration.

- Installation of sumps within excavations may be necessary to remove accumulated stormwater. The sumps should be located outside of the footing footprint and be installed to a depth sufficient to lower the water to below the excavated subgrade elevation.
- Construction of stabilized access roads using non-moisture sensitive materials and geotextile fabric to provide separation from underlying soil should be expected.
- Increased handling, excavation, and disposal of wet and disturbed surface materials should be expected.
- Protection of exposed soil subgrades and stockpiles will be required.
- Heavy rainfall can occur during winter months and can compromise earthwork schedules in this region
- In general, snowfall is not dramatically high; however, frozen ground should not be proof rolled or compacted, and fill should not be placed over frozen ground.

8.0 OBSERVATION OF CONSTRUCTION

Recommendations provided in this report assume that GeoDesign will be retained to provide geotechnical consultation and observation services during construction. Satisfactory earthwork and foundation performance depends to a large degree on the quality of construction. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience with the site conditions and an understanding of the geotechnical recommendations; therefore, GeoDesign personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated and to verify that the work is completed in accordance with the construction drawings and specifications.

Observation and laboratory testing of the proposed fill materials should be completed to verify that proposed fill materials are in conformance with our recommendations. Observation of the placement and compaction of the fill should be performed to verify it meets the required compaction and will be capable of providing the structural support for the proposed infrastructure and buildings. A sufficient number of in-place density tests should be performed as the fill is placed to verify the required relative compaction is being achieved.

9.0 LIMITATIONS

We have prepared this report for use by KPG, Inc. and its consultants in design of this project. The data and report can be used for bidding or estimating purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other nearby building sites.

Exploration observations indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of excavation and construction, re-evaluation will be necessary.

The site development plans and design details were preliminary at the time this report was prepared. If design changes are made, we request that we be retained to review our conclusions and recommendations and to provide a written modification or verification.

The scope of our services does not include services related to construction safety precautions and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty, express or implied, should be understood.

♦ ♦ ♦

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

Kevin J. Lamb, P.E.
Principal Engineer

Signed 08/10/2017

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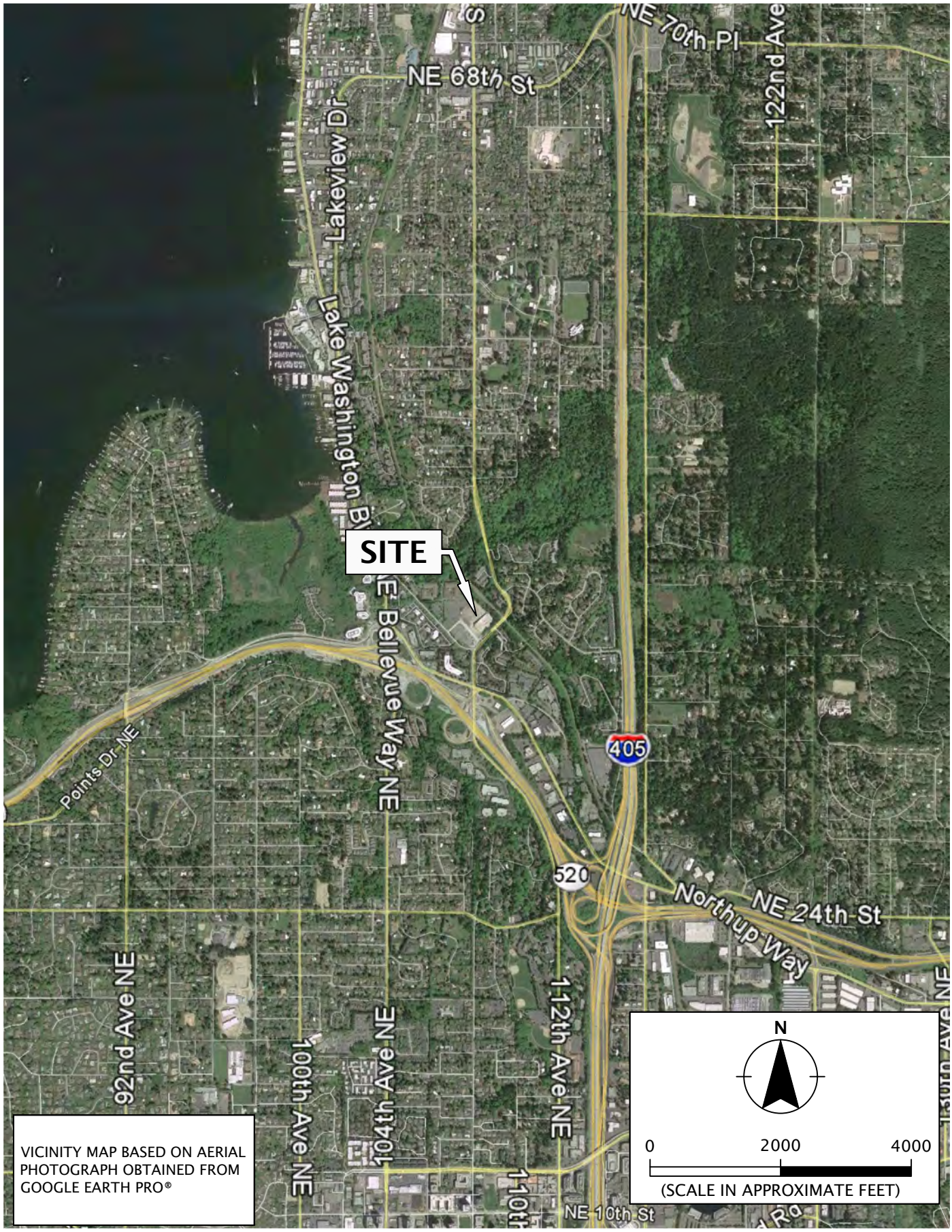
FIGURES



GeoDesign Inc 10700 Meridian Avenue North - Suite 402 Seattle, WA 98133 206.838.9900 www.geodesigninc.com	KPG-34-01	**VICINITY MAP**	
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 1**

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LEGEND:
B-1 BORING

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, AUGUST 6, 2014

0 60 120
(SCALE IN FEET)

N

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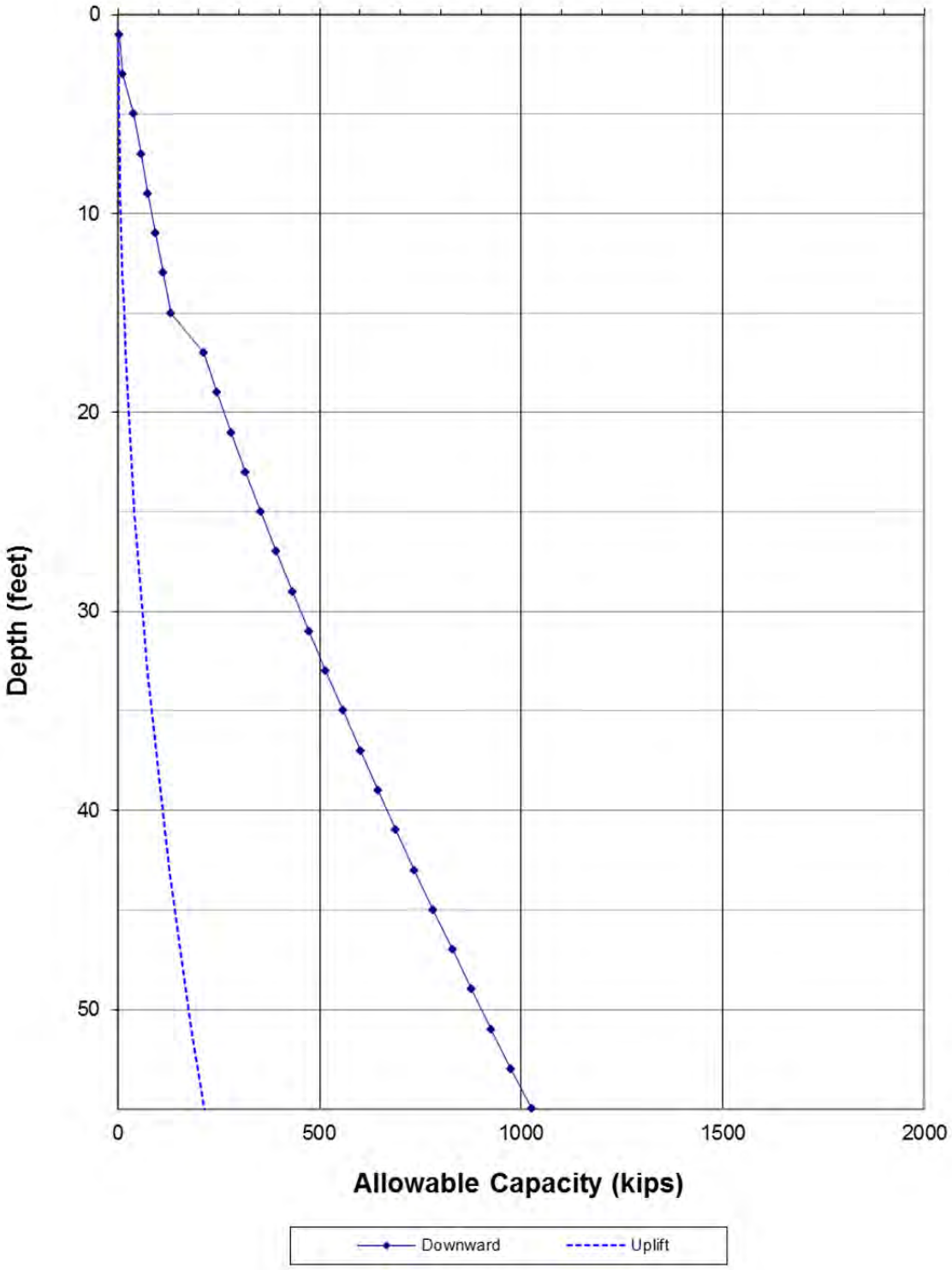
KPG-34-01	SITE PLAN	
AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	FIGURE 2



GEODESIGN INC 10700 Meridian Avenue North - Suite 402 Seattle WA 98133 206.838.9900 www.geodesigninc.com	KPG-34-01	**BRIDGE ABUTMENT LOCATION – 36-INCH-DIAMETER CAST-IN-PLACE CONCRETE PILE CAPACITY PROFILE**	
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 3**

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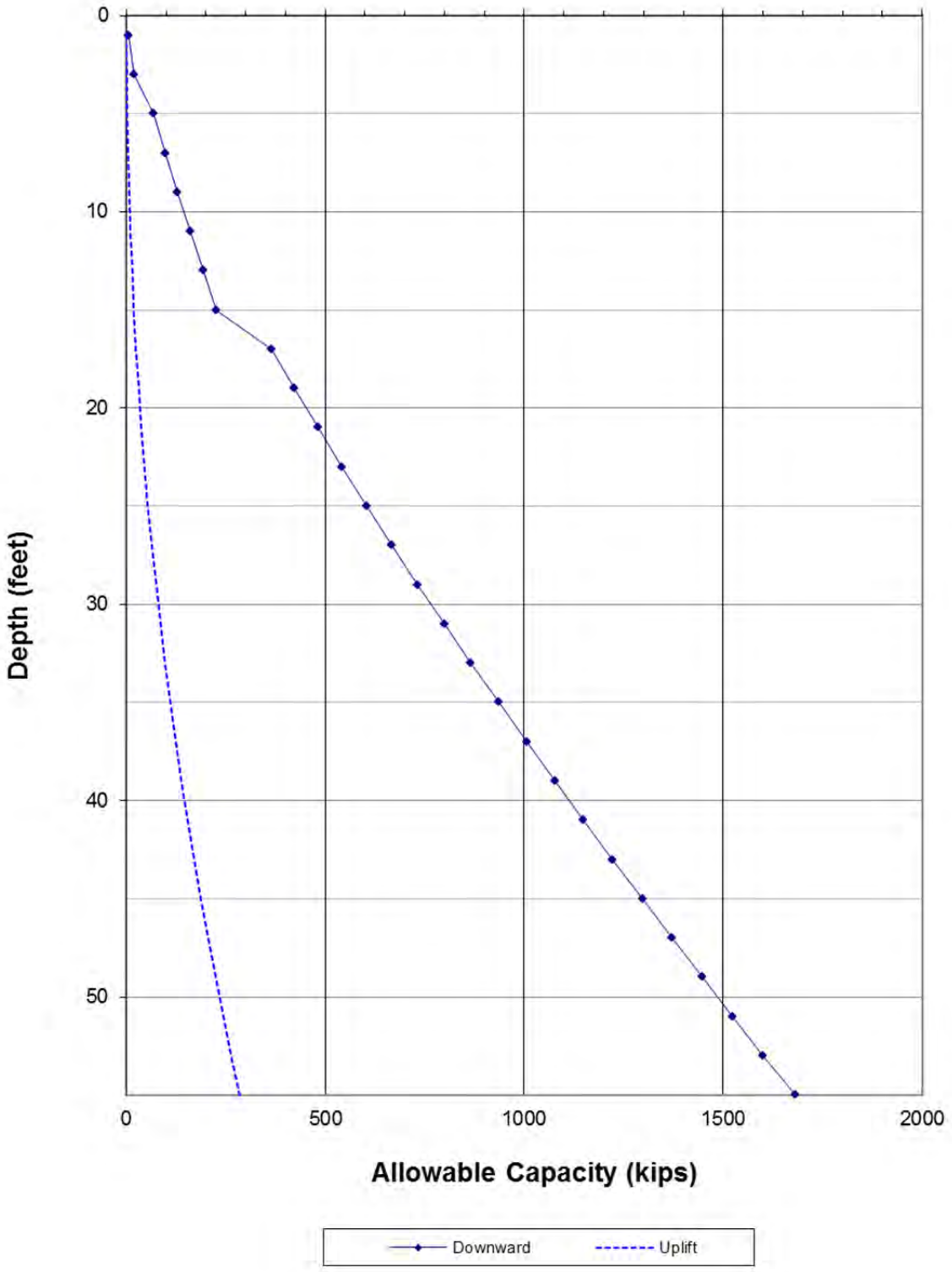

GEODESIGN INC 10700 Meridian Avenue North - Suite 402 Seattle WA 98133 206.838.9900 www.geodesigninc.com	KPG-34-01	**BRIDGE ABUTMENT LOCATION – 48-INCH-DIAMETER CAST-IN-PLACE CONCRETE PILE CAPACITY PROFILE**	
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 4**

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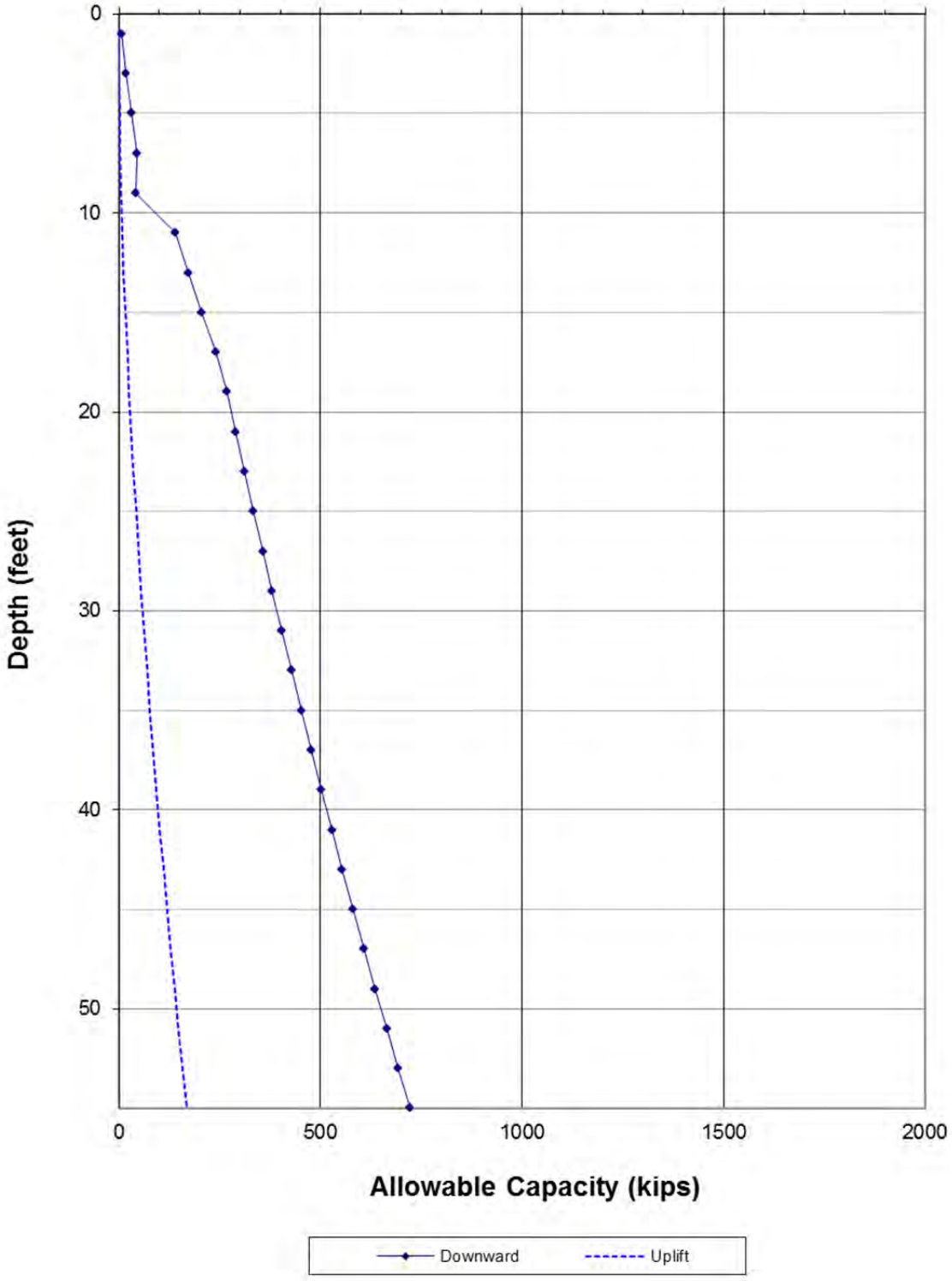

GEODESIGN INC 10700 Meridian Avenue North - Suite 402 Seattle WA 98133 206.838.9900 www.geodesigninc.com	KPG-34-01	**TOWER LOCATION – 36-INCH-DIAMETER CAST-IN-PLACE CONCRETE PILE CAPACITY PROFILE**	
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 5**

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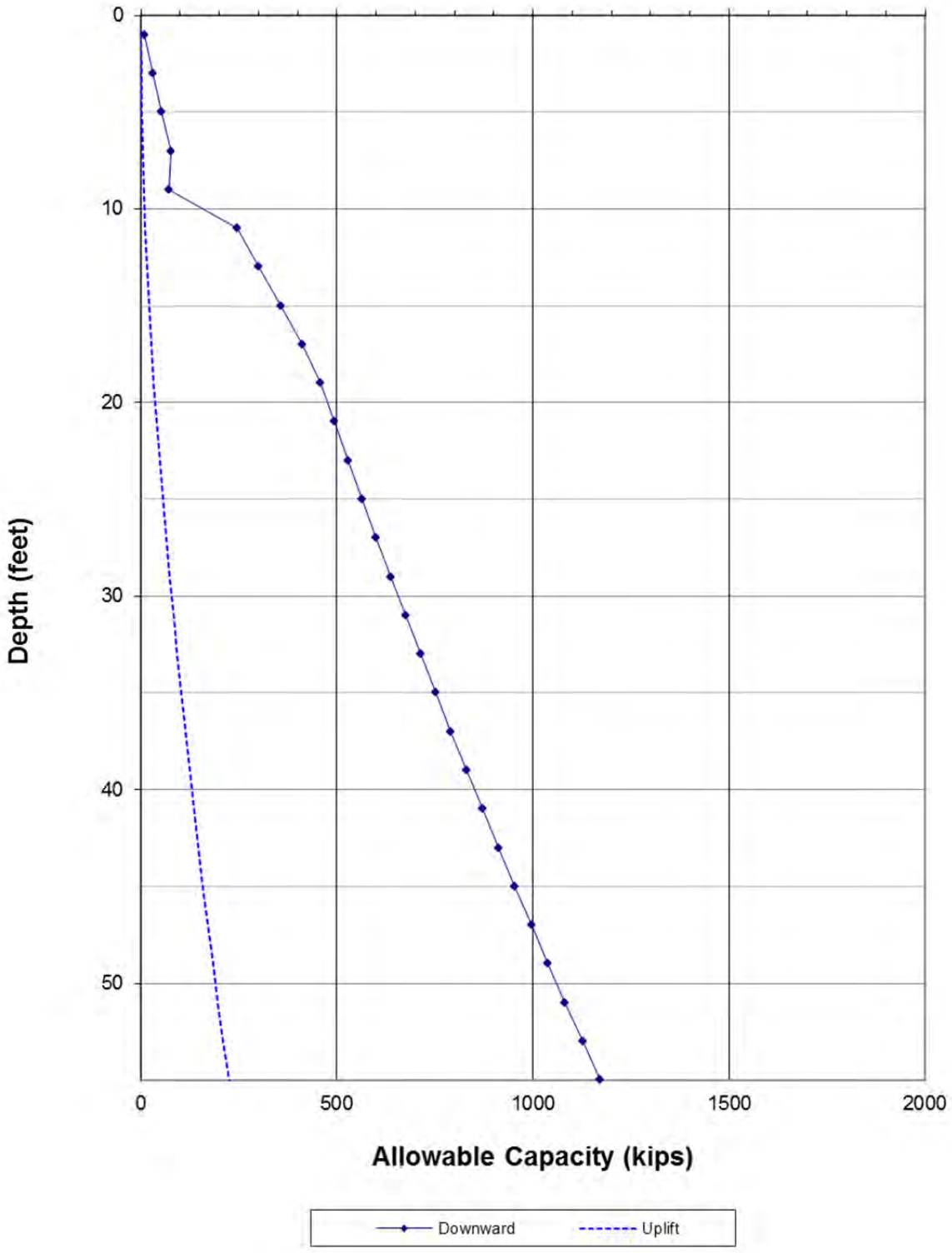

GEODESIGN INC 10700 Meridian Avenue North - Suite 402 Seattle WA 98133 206.838.9900 www.geodesigninc.com	KPG-34-01	**TOWER LOCATION – 48-INCH-DIAMETER CAST-IN-PLACE CONCRETE PILE CAPACITY PROFILE**	
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 6**

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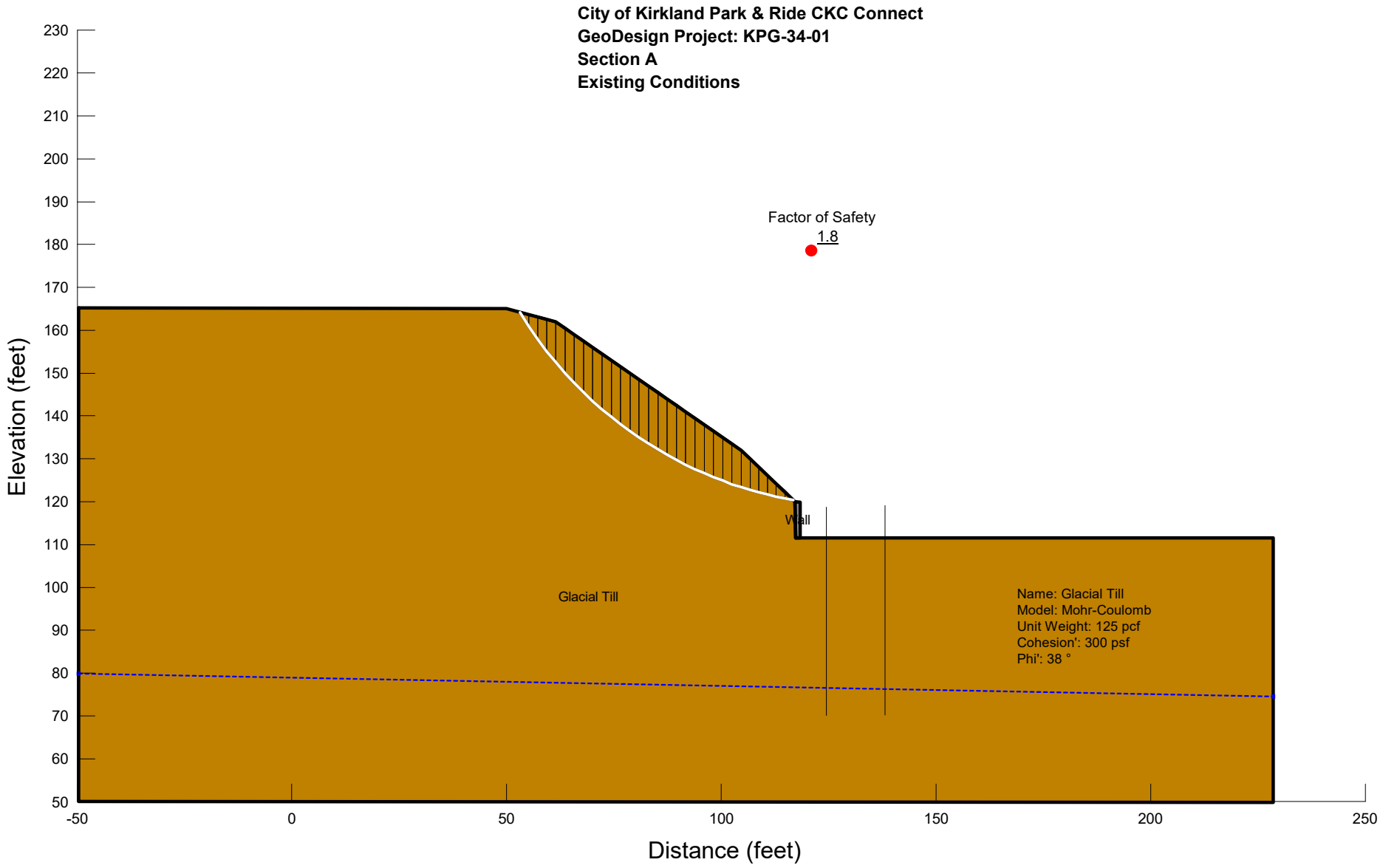

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KPG-34-01	SLOPE STABILITY ANALYSIS – EXISTING CONDITIONS	
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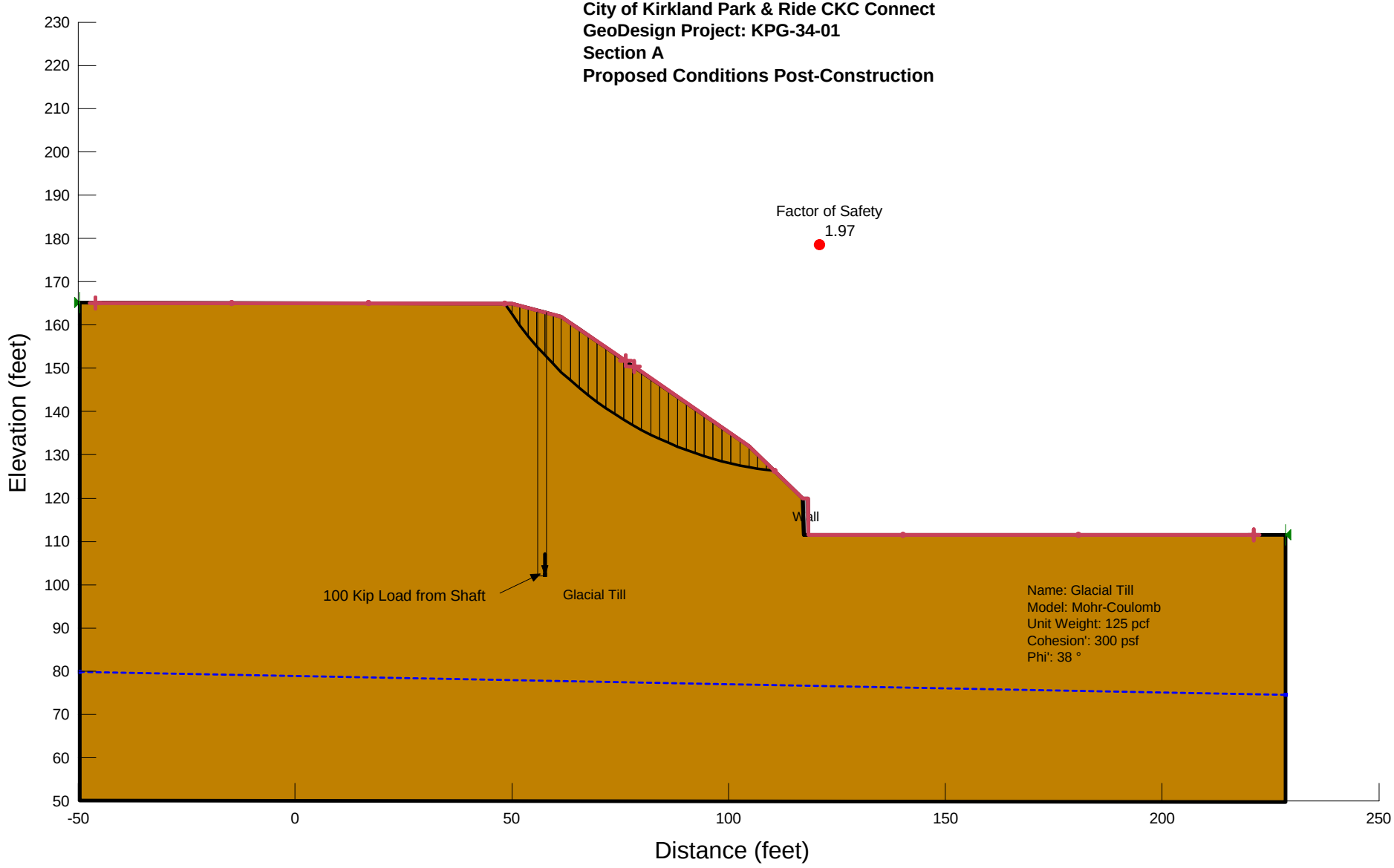
City of Kirkland Park & Ride CKC Connect
GeoDesign Project: KPG-34-01
Section A
Proposed Conditions Post-Construction



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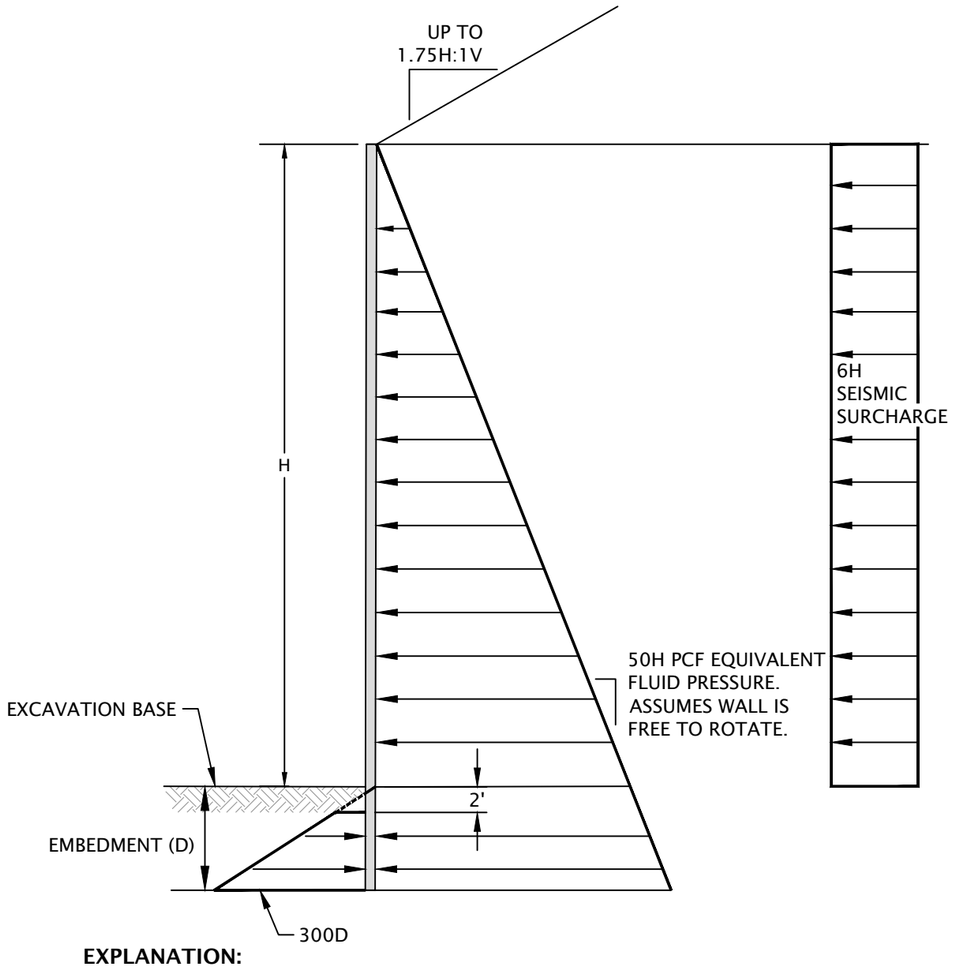
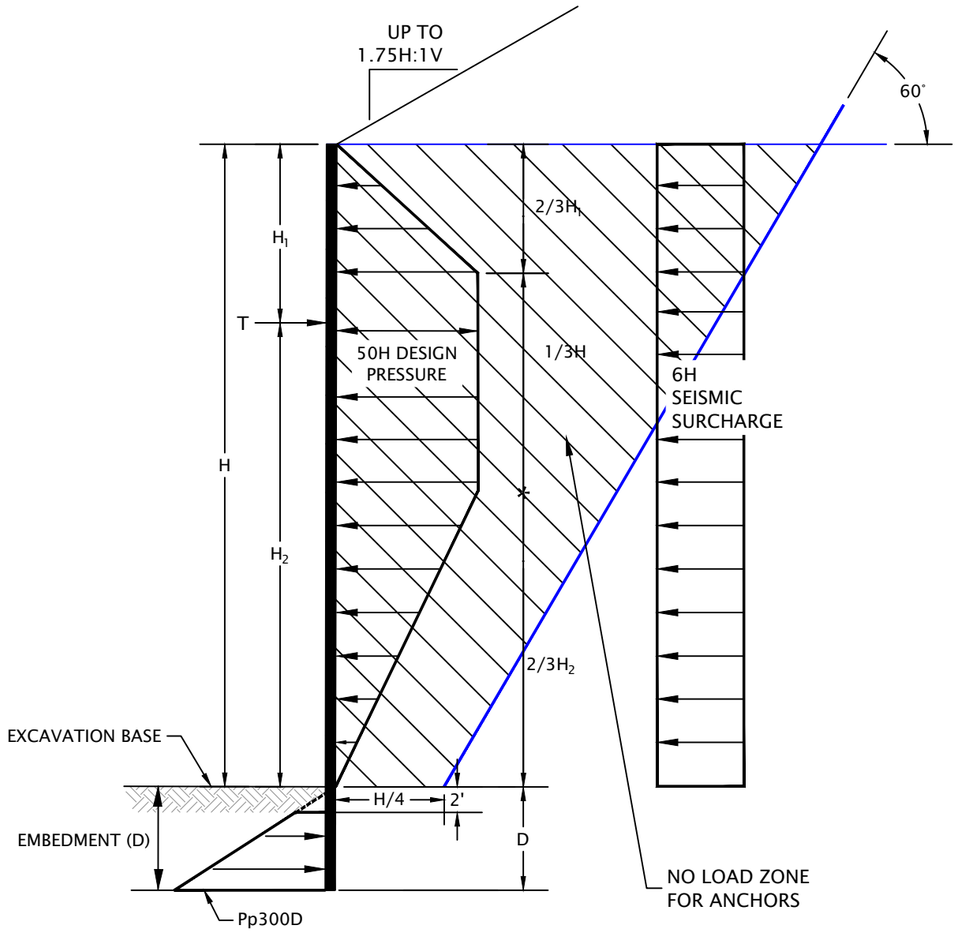
	AUGUST 2017	SOUTH KIRKLAND PARK & RIDE CKC CONNECTION KIRKLAND, WA	**FIGURE 8**

RECOMMENDED DESIGN PARAMETERS FOR CANTILEVERED WALL



EXPLANATION:
H = DEPTH OF EXCAVATION IN FEET
D = SOLDIER PILE EMBEDMENT DEPTH

RECOMMENDED DESIGN PARAMETERS FOR SHORING



EXPLANATION:
H = DEPTH OF EXCAVATION IN FEET
D = SOLDIER PILE EMBEDMENT DEPTH
T = TIEBACK ANCHOR

NOTES:
1. ALL EARTH PRESSURES ARE IN UNITS OF POUNDS PER SQUARE FOOT.
2. EMBEDMENT(D) SHOULD BE DETERMINED BY SUMMATION OF MOMENTS AT THE BOTTOM OF THE SOLDIER PILES OR AT GROUND ANCHOR LOCATION IF PRESENT. MINIMUM PILE EMBEDMENT SHALL BE 15 FEET.
3. PASSIVE PRESSURES ARE ALLOWABLE VALUES AND INCLUDE A 1.5 FACTOR OF SAFETY.
4. PASSIVE PRESSURE ACTS OVER 2.5 TIMES THE CONCRETED DIAMETER OF THE SOLDIER PILE OR THE PILE SPACING, WHICHEVER IS LESS.
5. APPARENT EARTH PRESSURE AND SURCHARGE ACT OVER THE PILE SPACING ABOVE THE BASE OF THE EXCAVATION.
6. ADDITIONAL SURCHARGE FROM FOOTINGS, LARGE STOCKPILES, HEAVY EQUIPMENT, ETC.,MUST BE ADDED TO THESE PRESSURES.
7. USE 50 PERCENT OF THE ACTIVE AND SURCHARGE PRESSURES FOR LAGGING DESIGN WITH SOLDIER PILES SPACED AT 8 FEET OR LESS.
8. REFER TO REPORT TEXT FOR ADDITIONAL DISCUSSIONS.

CANTILEVERED AND BRACED WALLS DESIGN CRITERIA

FIGURE 9

SOUTH KIRKLAND PARK & RIDE CKC CONNECTION
KIRKLAND, WA

KPG-34-01

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APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

Subsurface conditions at the site were explored by completing one soil borings (B-1) to a depth of 61.0 feet BGS. The boring was completed on July 30, 2014 by Holt Drilling Services of Milton, Washington, using a track-mounted drill rig and mud rotary drilling techniques. The location of the exploration was determined in the field by using hand-held GPS equipment. This information should be considered accurate to the degree implied by the methods used.

A member of our geotechnical staff observed the exploration. We obtained representative samples of the various soils encountered in the exploration. Samples were obtained using an SPT at 2.5-foot intervals for the initial 10 feet and then at 5-foot intervals thereafter.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are included in this appendix. The exploration log indicates the depths at which the soils or their characteristics change, although the change could be gradual. A horizontal line between soil types indicates an observed change. If the change was gradual the change is indicated using a dashed line. Classifications and sampling intervals are presented on the exploration log included in this appendix.

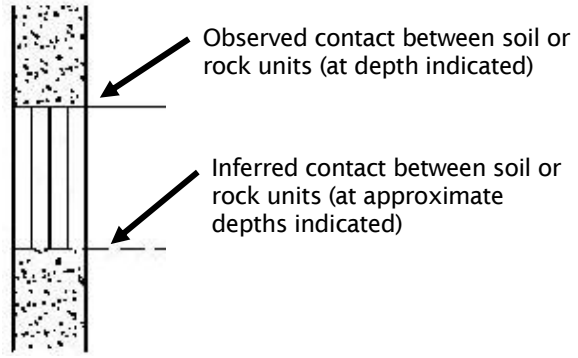
LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are presented on the exploration logs if those classifications differed from the field classifications.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample obtained in general accordance with ASTM D 1586 Standard Penetration Test with recovery
	Location of sample obtained using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D 1587 with recovery
	Location of sample obtained using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample obtained using Dames & Moore and 140-pound hammer or pushed with recovery
	Location of sample obtained using 3-inch-O.D. California split-spoon sampler and 140-pound hammer
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	PP	Pocket Penetrometer
CBR	California Bearing Ratio	P200	Percent Passing U.S. Standard No. 200 Sieve
CON	Consolidation		
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal
P	Pushed Sample		

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
		MS	Moderate Sheen
ppm	Parts per Million	HS	Heavy Sheen

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EXPLORATION KEY

TABLE A-1

RELATIVE DENSITY - COARSE-GRAINED SOILS

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 - 11	0 - 4
Loose	4 – 10	11 - 26	4 - 10
Medium Dense	10 – 30	26 - 74	10 - 30
Dense	30 – 50	74 - 120	30 - 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOILS

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 - 4	3 – 6	2 - 5	0.25 - 0.50
Medium Stiff	4 - 8	6 – 12	5 - 9	0.50 - 1.0
Stiff	8 - 15	12 – 25	9 - 19	1.0 - 2.0
Very Stiff	15 - 30	25 – 65	19 – 31	2.0 - 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOILS (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVELS (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVELS WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SANDS (<5% fines)	SW or SP	SAND
		SANDS WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SANDS WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOILS			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In: Fine-Grained Soils	Silt and Clay In: Coarse-Grained Soils	Percent	Sand and Gravel In: Fine-Grained Soils	Sand and Gravel In: Coarse-Grained Soils
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	Indicate %

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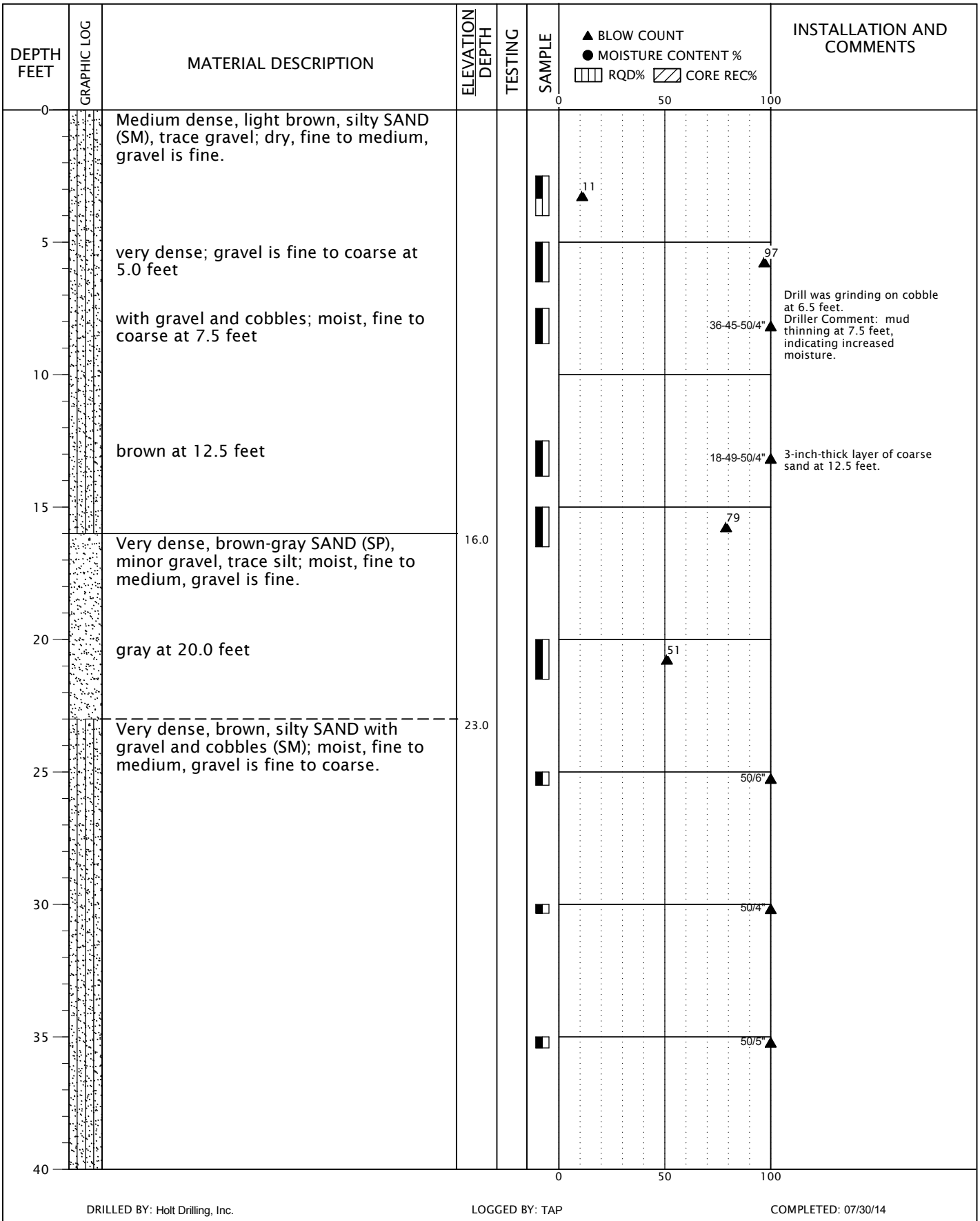
SOIL CLASSIFICATION SYSTEM

TABLE A-2



DRILLED BY: Holt Drilling, Inc.

LOGGED BY: TAP

COMPLETED: 07/30/14

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 4 7/8-inch

GeoDesign Inc
10700 Meridian Avenue North - Suite 402
Seattle WA 98133
206.838.9900 www.geodesigninc.com

KPG-34-01

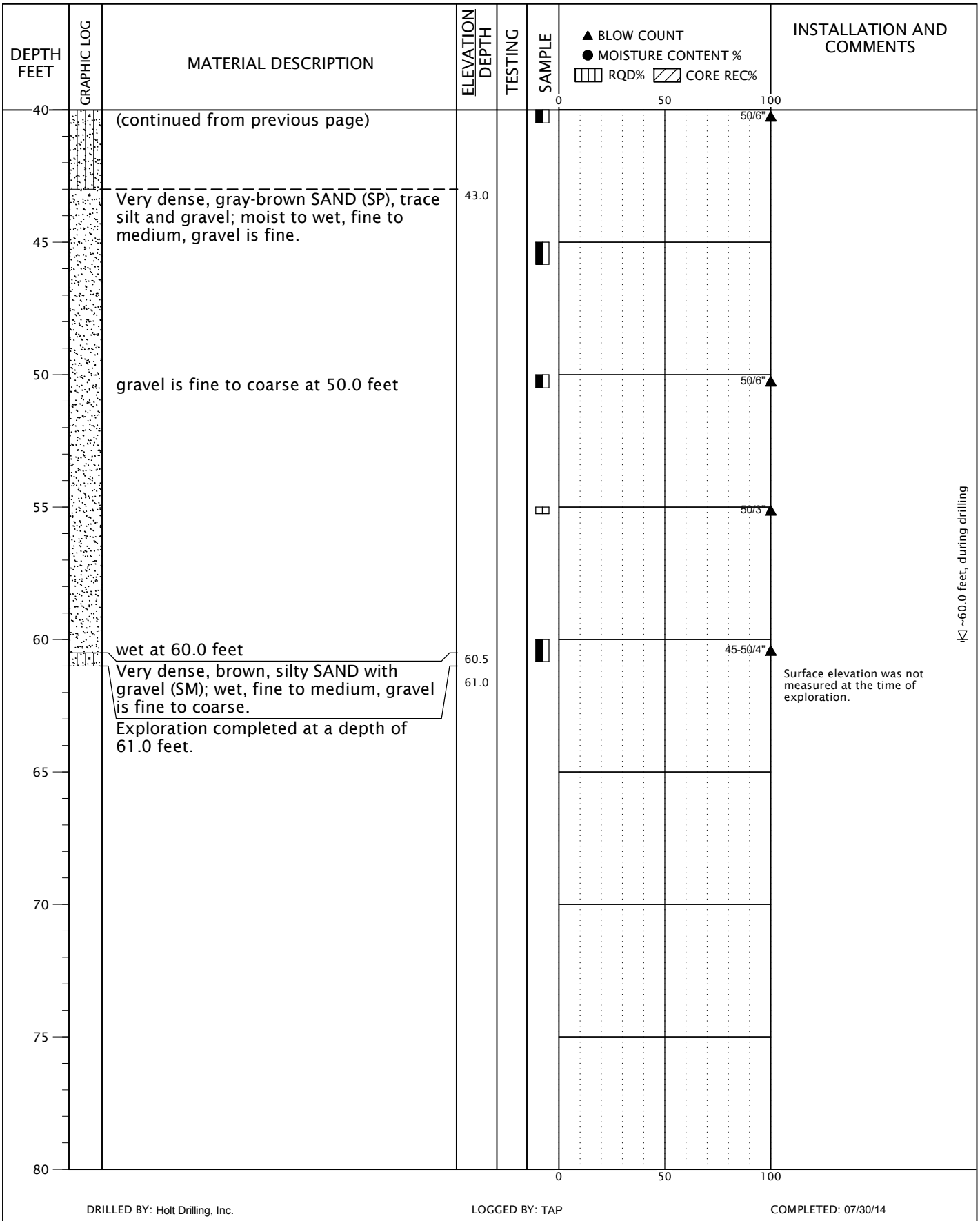
BORING B-1

AUGUST 2017

SOUTH KIRKLAND PARK & RIDE CKC CONNECTION
KIRKLAND, WA

FIGURE A-1

BORING LOG KPG-34-01-B1.GPJ GEODESIGN.GDT PRINT DATE: 8/10/17:RC:KT



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KPG-34-01

BORING B-1
(continued)

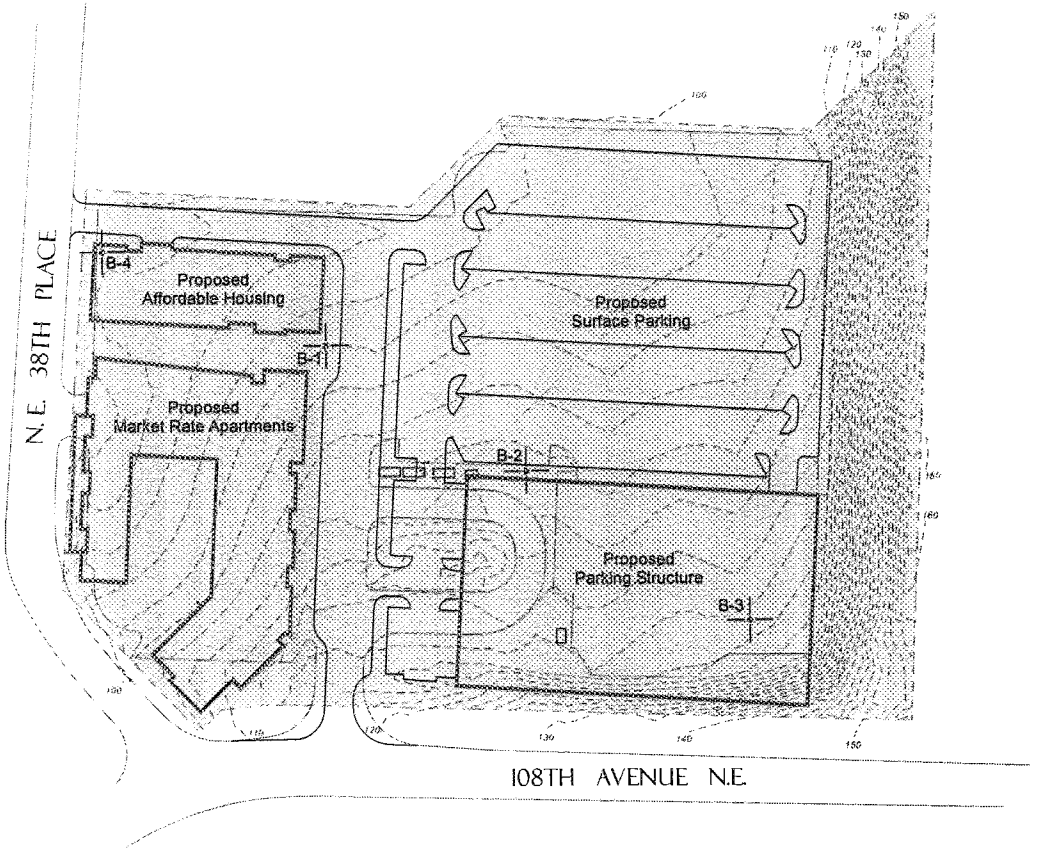
AUGUST 2017

SOUTH KIRKLAND PARK & RIDE CKC CONNECTION
KIRKLAND, WA

FIGURE A-1

BORING LOG KPG-34-01-B1.GPJ GEODESIGN.GDT PRINT DATE: 8/10/17:RC:KT

APPENDIX B



NORTH

1"=100'

0 50 100 200

Scale in Feet

LEGEND

B-1 — Approximate Location of ESNW Boring, Proj. No. ES-2264, Dec. 2011

Subject Property

Existing Structure

Proposed Building

NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Boring Location Plan
South Kirkland Park & Ride Development
Kirkland, Washington

Earth Solutions NW

Drwn. By	GLS
Checked By	SSR
Date	12/21/2011
Proj. No.	2264
Plate	2

Earth Solutions NW
1805 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-284-3300

BORING NUMBER B-1

CLIENT Polygon NW
PROJECT NUMBER 2264
DATE STARTED 12/10/11 COMPLETED 12/10/11
DRILLING CONTRACTOR Boretec
DRILLING METHOD HSA
LOGGED BY SSR CHECKED BY SSR
NOTES Grass Landscaping

PROJECT NAME South Kirkland Park & Ride Development
PROJECT LOCATION Kirkland, Washington
GROUND ELEVATION 102 ft HOLE SIZE
GROUND WATER LEVELS:
AT TIME OF DRILLING ---
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							Brown silty SAND, loose, moist (Fill)
	SS	100	3-4-17 (21)	MC = 9.00%	SM		
3.0							99.0 Grayish brown silty SAND with gravel, medium dense, moist (Fill)
5	SS	100	10-12-24 (36)	MC = 12.90%	SM		
6.0							96.0 Brown silty SAND, dense, moist (Possible Fill)
7.5	SS	100	19-30-32 (62)	MC = 6.80%	SM		94.5 Grayish brown silty SAND, very dense, moist
10							-trace gravel
	SS	100	15-21-29 (50)	MC = 8.00% Fines = 30.30%			
15	SS	100	15-21-50/5"	MC = 11.10%	SM		
20							

GENERAL BH / TP / WELL 2264.GPJ GINT US.GDT 12/21/11

Earth Solutions NW
1805 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-284-3300

BORING NUMBER B-1

CLIENT Polygon NW

PROJECT NAME South Kirkland Park & Ride Development

PROJECT NUMBER 2264

PROJECT LOCATION Kirkland, Washington

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20	SS	100	30-50/5"	MC = 9.10%			Grayish brown silty SAND, very dense, moist *(continued)*
							-trace gravel
							-occasional sand lenses
25	SS	100	20-25-38 (63)	MC = 14.70%	SM		-silt lenses
30	SS	100	21-29-22 (51)	MC = 11.90%			-increase in moisture content
							33.5 68.5 Brown poorly graded SAND with silt, very dense, water bearing
35	SS	100	11-24-29 (53)	MC = 18.60% Fines = 9.10%	SP-SM		36.5 65.5 Boring terminated at 36.5 feet below existing grade. Groundwater seepage encountered at 32.0 feet during drilling. Boring backfilled with bentonite.
							Bottom of hole at 36.5 feet.

Earth Solutions NW
1805 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-284-3300

BORING NUMBER B-2

CLIENT Polygon NW
PROJECT NUMBER 2264
DATE STARTED 12/10/11 COMPLETED 12/10/11
DRILLING CONTRACTOR Boretec
DRILLING METHOD HSA
LOGGED BY SSR CHECKED BY SSR
NOTES 2" Asphalt

PROJECT NAME South Kirkland Park & Ride Development
PROJECT LOCATION Kirkland, Washington
GROUND ELEVATION 108 ft HOLE SIZE
GROUND WATER LEVELS:
AT TIME OF DRILLING --
AT END OF DRILLING —
AFTER DRILLING —

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							Brown silty SAND, medium dense, moist (Fill)
					SM		
2.0							106.0
							Grayish brown silty SAND, dense, moist
	SS	100	40-24-24 (48)	MC = 6.10%			-trace gravel
5							
	SS	100	10-24-30 (54)	MC = 10.40%	SM		-becomes very dense -becomes brown -sand layer
	SS	100	12-16-17 (33)	MC = 14.50%			
10							
10.0							98.0
	SS	100	13-18-26 (44)	MC = 9.50%			Gray silty SAND, dense, moist -trace gravel
15							
	SS	100	50	MC = 8.10%	SM		-becomes dense
20							
20.0							88.0

GENERAL BH / TP / WELL 2264.GPJ GINT US.GDT 12/21/11

Earth Solutions NW
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Bellevue, Washington 98005
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BORING NUMBER B-2

CLIENT Polygon NW
PROJECT NAME South Kirkland Park & Ride Development
PROJECT NUMBER 2264
PROJECT LOCATION Kirkland, Washington

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20	SS	100	50	MC = 20.90%			Gray silty fine SAND, very dense, wet
							-silt in sampler tip
25	SS	100	27-50/3"	MC = 10.90%			-silt layers
					SM		
30	SS	100	25-45-50/5"	MC = 15.30%			-coarse sand in sampler -becomes wet
							34.5 73.5 Brown well graded SAND with silt, very dense, water bearing
35	SS	100	38-50	MC = 14.90% Fines = 5.90%	SP-SM		36.0 72.0 Boring terminated at 36.0 feet below existing grade. Groundwater seepage encountered at 20.0 and 27.0 feet during drilling. Boring backfilled with bentonite. Bottom of hole at 36.0 feet.

Earth Solutions NW
1805 136th Place N.E., Suite 201
Bellevue, Washington 98005
Telephone: 425-284-3300

BORING NUMBER B-3

CLIENT Polygon NW
PROJECT NUMBER 2264
DATE STARTED 12/10/11 COMPLETED 12/10/11
DRILLING CONTRACTOR Boretec
DRILLING METHOD HSA
LOGGED BY SSR CHECKED BY SSR
NOTES 3" Asphalt

PROJECT NAME South Kirkland Park & Ride Development
PROJECT LOCATION Kirkland, Washington
GROUND ELEVATION 118 ft HOLE SIZE
GROUND WATER LEVELS:
AT TIME OF DRILLING —
AT END OF DRILLING —
AFTER DRILLING —

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0							Brown silty SAND, medium dense, moist
	SS	100	13-18-13 (31)	MC = 8.70%	SM		
3.5							114.5
5							Gray silty SAND, dense, moist
	SS	100	11-11-11 (22)	MC = 8.50%	SM		
7.5							110.5
	SS	100	8-13-23 (36)	MC = 21.20% Fines = 67.50%	ML		Gray SILT, dense, moist -sand lenses
10							108.0
	SS	100	12-44-32 (76)	MC = 17.10%			Gray silty SAND, very dense, wet -seepage - sand lenses
15	SS	100	23-50/2"	MC = 11.60%	SM		-becomes moist
20							98.0

GENERAL BH / TP / WELL 2264.GPJ GINT US.GDT 12/21/11

Earth Solutions NW
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Bellevue, Washington 98005
Telephone: 425-284-3300

BORING NUMBER B-3

CLIENT Polygon NW

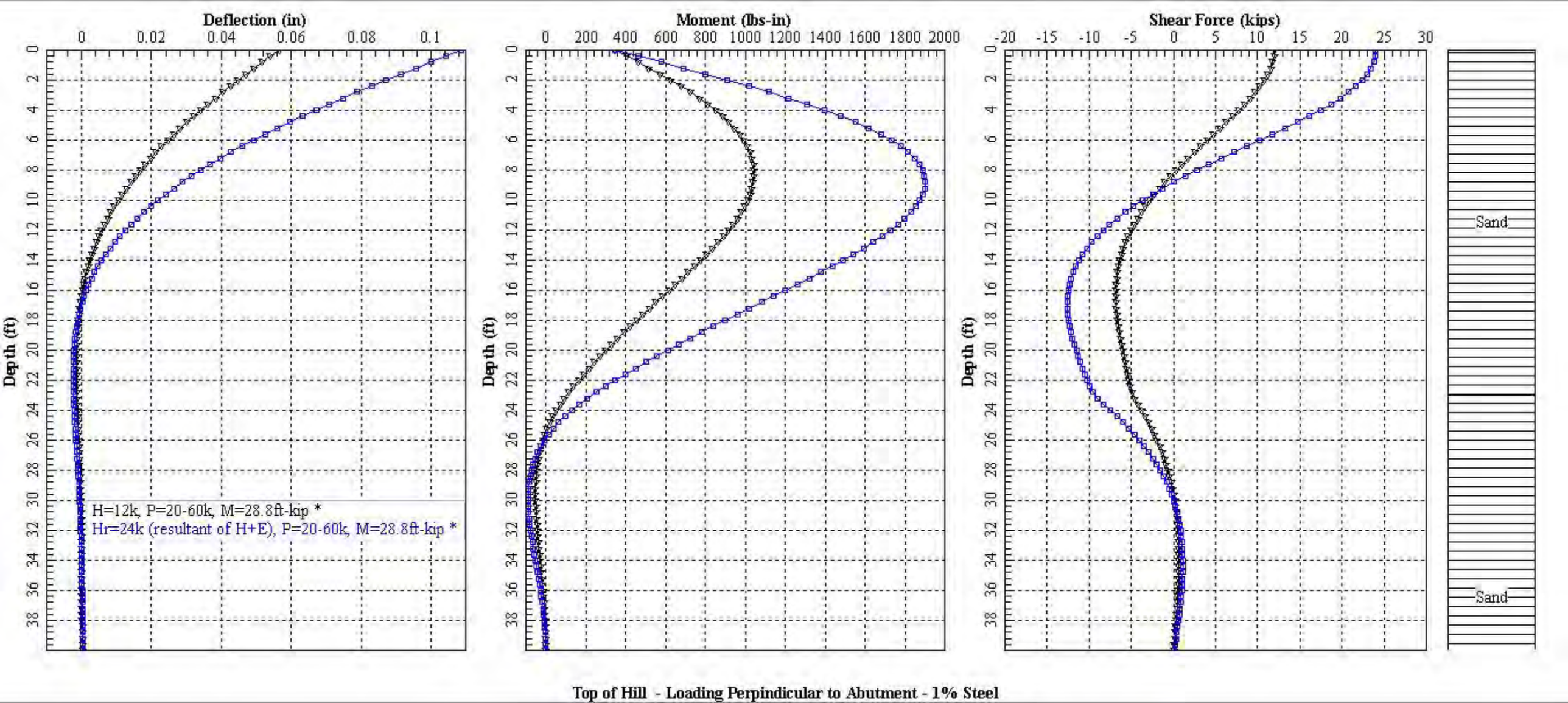
PROJECT NAME South Kirkland Park & Ride Development

PROJECT NUMBER 2264

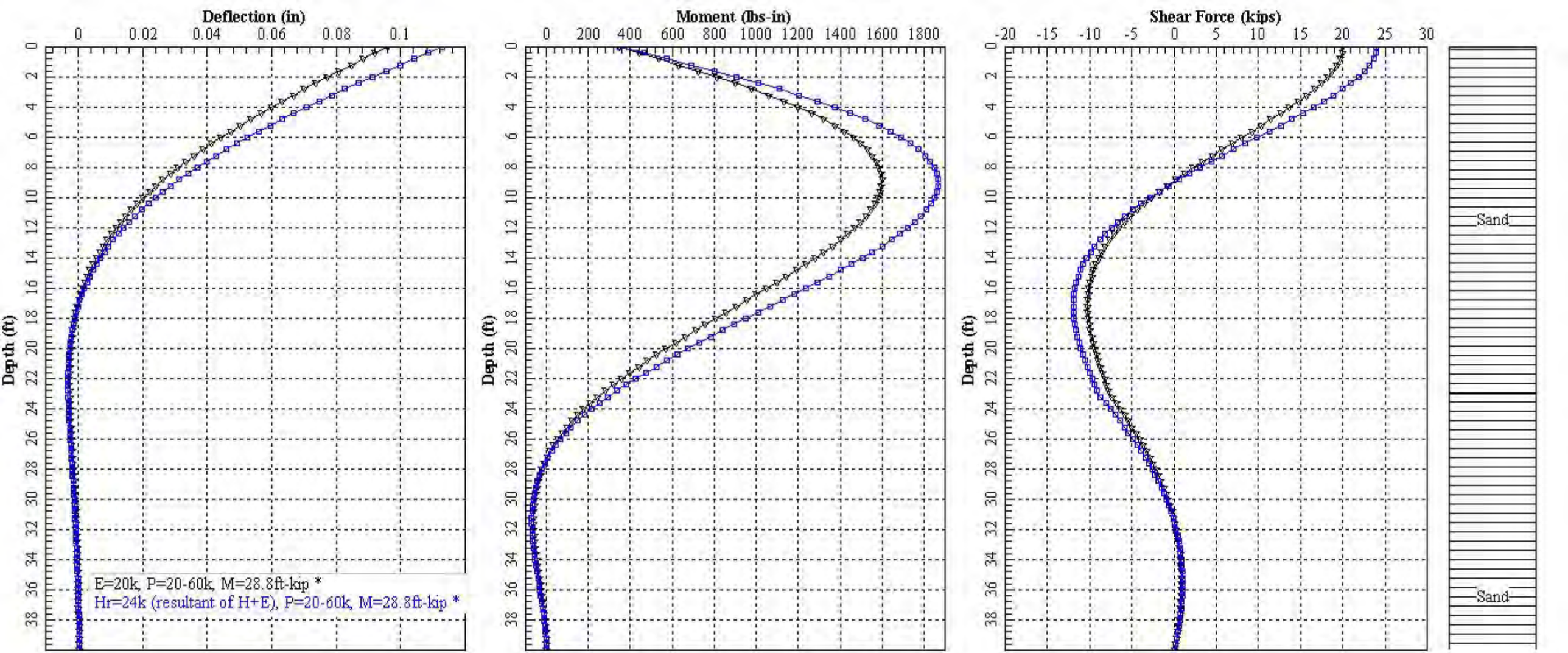
PROJECT LOCATION Kirkland, Washington

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20	SS	100	19-50/3"	MC = 22.20% Fines = 4.60%			Grayish brown poorly graded fine SAND, very dense, water bearing
25	SS	100	22-7-44 (51)	MC = 20.50%	SP		-continued seepage
30	SS	100	23-50/5"	MC = 20.10%			
35	SS	100	11-41-50/3"	MC = 20.10%			
36.5							Boring terminated at 36.5 feet below existing grade. Groundwater seepage encountered at 10.0 and 20.0 feet during drilling. Boring backfilled with bentonite. Bottom of hole at 36.5 feet.
81.5							

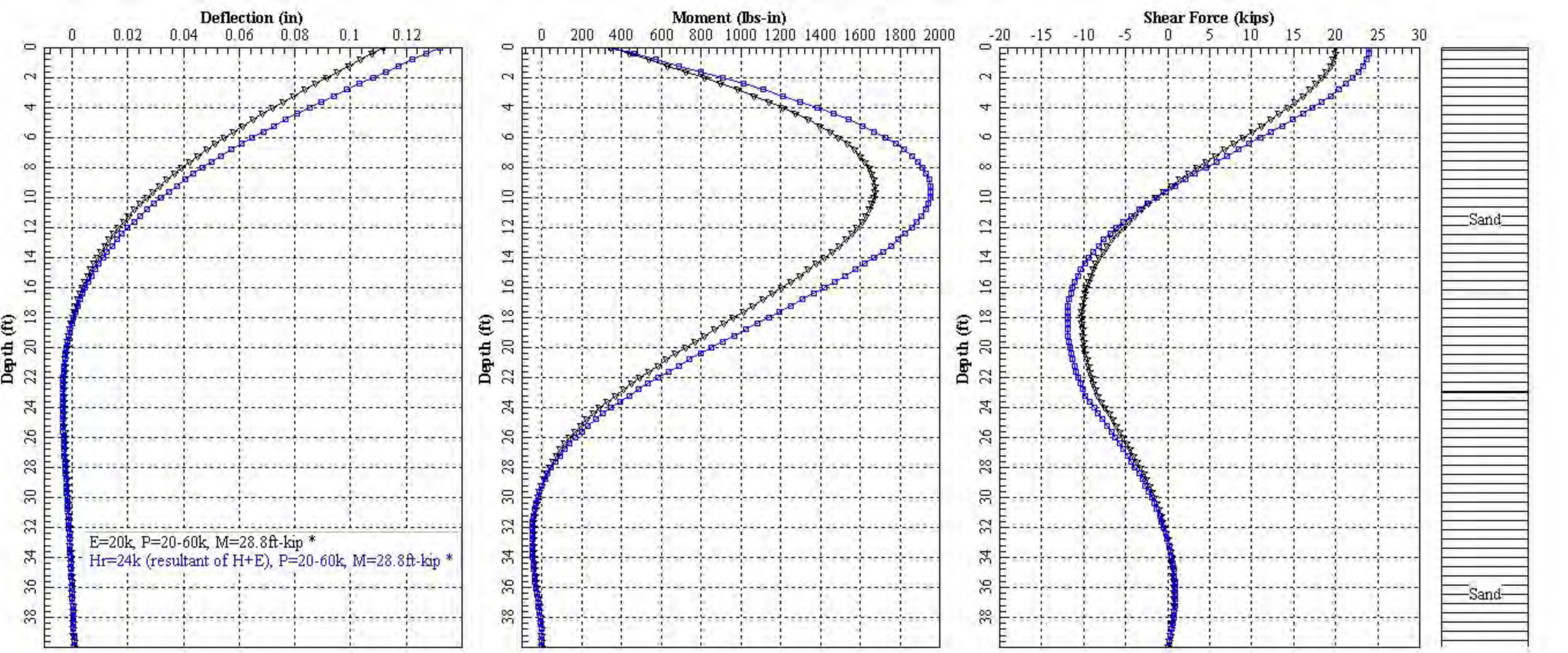
APPENDIX C



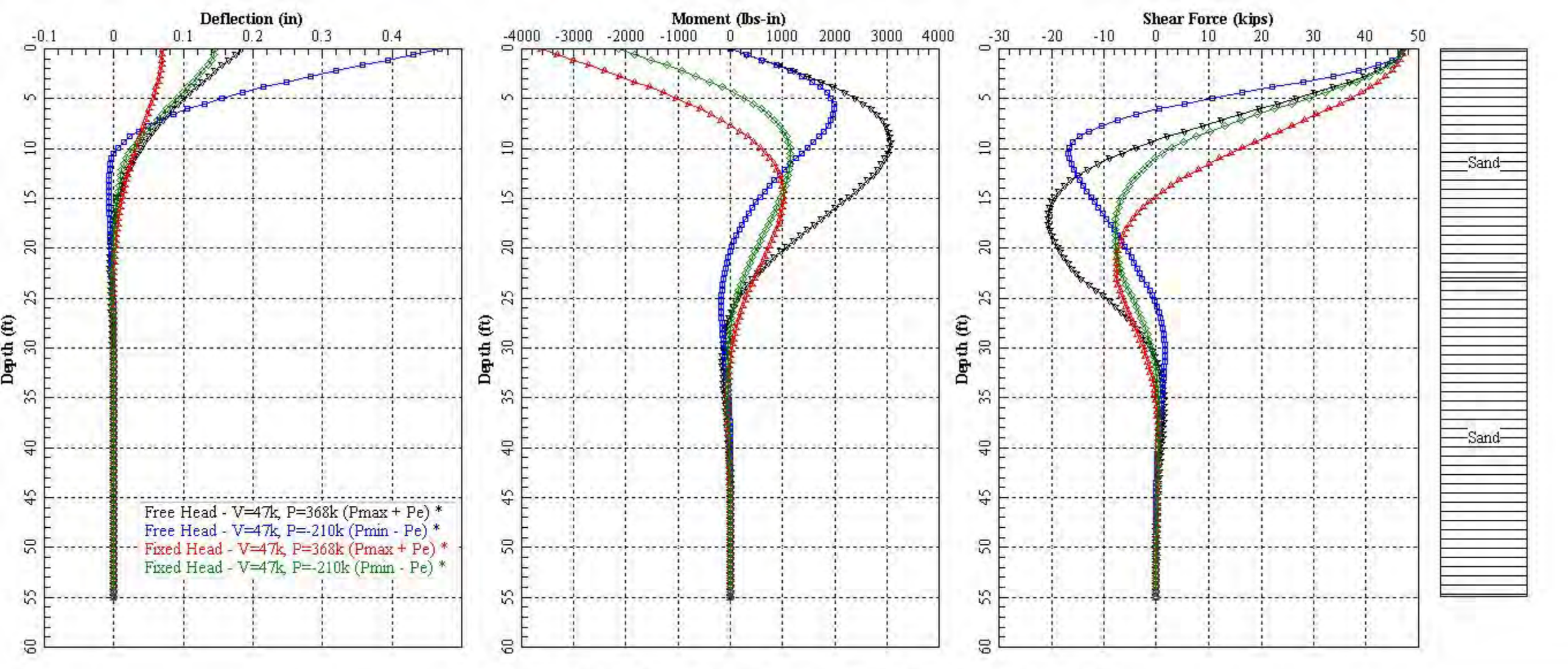
Top of Hill - Loading Perpindicular to Abutment - 1% Steel



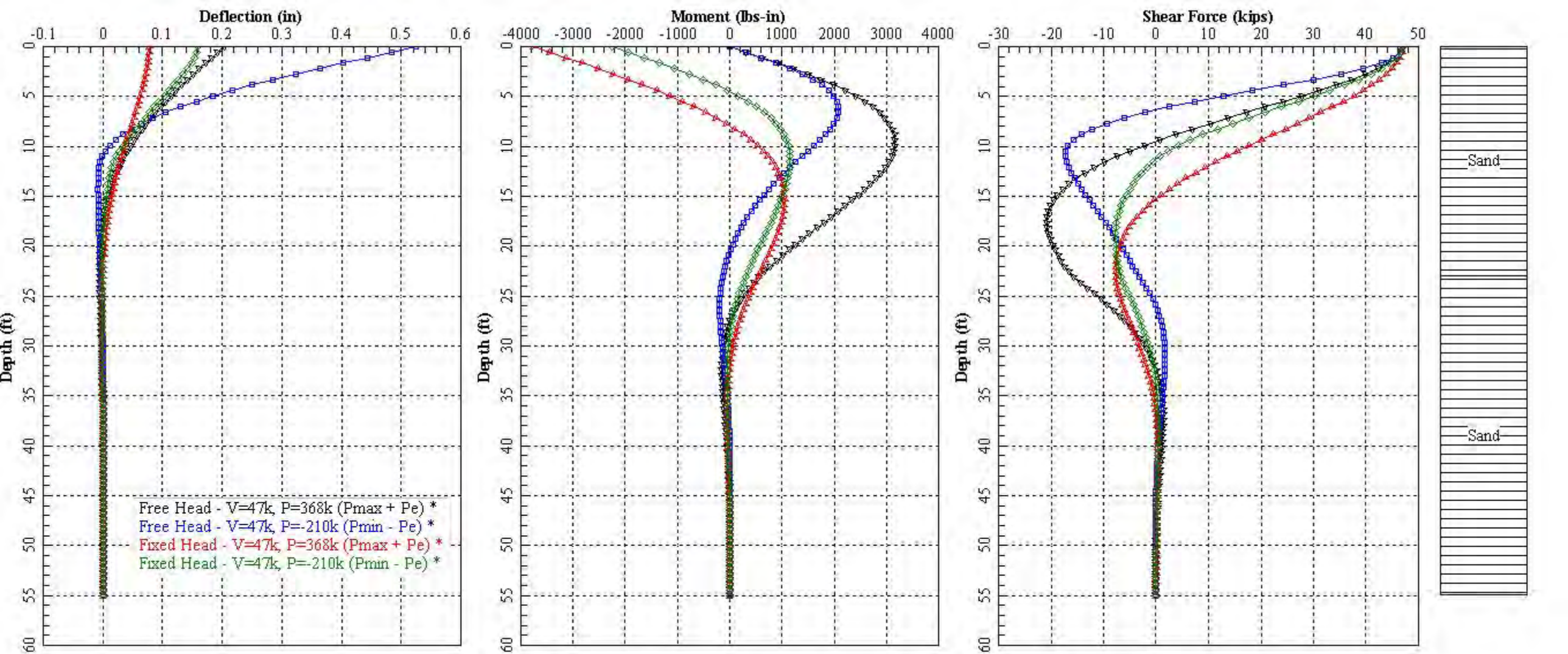
Top of Hill - Loading Parallel to Abutment - Leading Row - 1% Steel



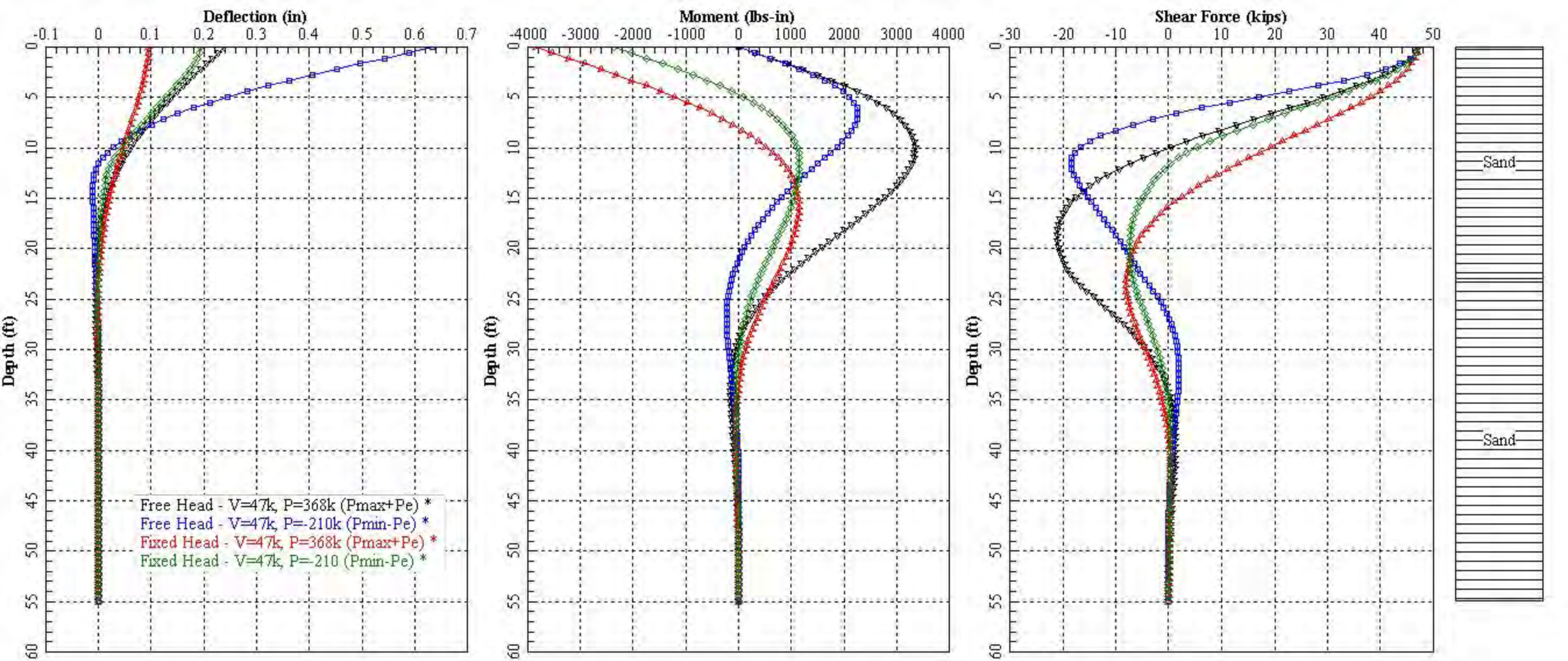
Top of Hill - Loading Parallel to Abutment - Trailing Row - 1% Steel



Bottom of Hill - Loading Perpendicular to Abutment - Free and Fixed Condtions - 1% Steel



Bottom of Hill - Loading Parallel to Abutment - Leading Row - Free and Fixed Condtions - 1% Steel



Bottom of Hill - Loading Parallel to Abutment - Trailing Row - Free and Fixed Condtions - 1% Steel

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

AC	asphalt concrete
ADA	Americans with Disabilities Act
ASTM	American Society for Testing and Materials
BGS	below ground surface
BMP	Best Management Practice
CKC	Cross Kirkland Corridor
CSO	Combined Sewer Overflow
g	gravitational acceleration (32.2 feet/second^2)
GIS	geographic information system
GPS	global positioning system
H:V	horizontal to vertical
IBC	International Building Code
ksf	kips per square foot
LiDAR	light detection and ranging
LUC	Land Use Code
MCE	maximum considered earthquake
OSHA	Occupational Safety and Health Administration
PCC	portland cement concrete
pcf	pounds per cubic foot
pci	pounds per cubic inch
PGA	peak ground acceleration
psf	pounds per square foot
psi	pounds per square inch
PVC	polyvinyl chloride
SFZ	Seattle Fault Zone
SPT	standard penetration test
WSS	Washington Standard Specifications for Road, Bridge, and Municipal Construction (2014)