Report
Geotechnical Engineering Services
Hyundai Terminal Administrative Buildings
Port of Tacoma, Washington

December 16, 1997

For

Port of Tacoma

Geo Engineers

December 16, 1997

Consulting Engineers and Geoscientists
Offices in Washington, Oregon, and Alaska

Port of Tacoma
c/o McGranahan Partnership
950 Fawcett, Suite 300
Tacoma, Washington 98402

Attention: Mr. Tom Marshall

Report
Geotechnical Engineering Services
Hyundai Terminal Administration Buildings
Port of Tacoma, Washington
File No. 0454-045-T03

INTRODUCTION AND SCOPE

This report presents the results of our geotechnical engineering services for the proposed Administration, Maintenance, and Marine Buildings at the Hyundai Terminal, Port of Tacoma, Washington. This area is shown on the Vicinity Map, Figure 1. Our understanding of the project is based on a preliminary site plan transmitted on September 24, 1997, and discussions with you.

We understand that the new administration and maintenance structures, will be constructed north of the former Lincoln Avenue right-of-way, on the former Rhone-Poulenc parcel. The marine building will be constructed on the former Murray-Pacific parcel along Blair waterway adjacent to the new wharf. The administration building will have an areal extent of 2800 square feet and will be 3 stories in height. The grade level of this structure will be used for parking and/or truck access. The maintenance building will have an areal extent of 14,700 square feet and will be one story. The marine building will have an areal extent of 990 square feet will be 2 stories high. All structures will be constructed of wood or metal.

PURPOSE AND SCOPE

The purpose of our services is to evaluate soil and ground water conditions at the building sites and to develop geotechnical recommendations and design criteria for the proposed structures.

Our specific scope of services includes the following:

GeoEngineers, Inc.
1101 Fawcett Ave., Suite 200
Tacoma, WA 98402
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1. Review previous explorations in the site vicinity to determine subsurface conditions at building sites.
2. Provide recommendations for site preparation including evaluation of the requirements and potential problems associated with site grading, and earthwork specifications.
3. Evaluate the potential for liquefaction of subsurface soils encountered in the explorations using the design earthquake specified in the Uniform Building Code (UBC).
4. Evaluate the settlement potential of the new structure under expected loading conditions and providing recommendations for preinducing or controlling settlement, as appropriate.
5. Provide recommendations for spread footings, as appropriate, including allowable bearing capacities, depth of embedment, lateral resistance, and estimated settlement.
6. Provide recommendations for support of slab-on-grade floors.
7. Provide recommendations for site drainage and control of any ground water which may be encountered.
8. Comment on any construction problems anticipated from the results of our explorations and studies.
9. Prepare a written report containing our conclusions and recommendations along with the supporting field and laboratory data.

SITE CONDITIONS

SURFACE CONDITIONS

The site is located north side of Port of Tacoma Road at the intersection with Lincoln Avenue. The site is irregular in shape and encompasses approximately 60-acres, as shown on the Site Plan, Figure 2. The vacated Lincoln Avenue parcel divides the site. The former Murray Pacific parcel is located to the south and the former Rhone-Poulenc parcel is located to the west. The site is bounded by Port of Tacoma Road to the west and by Blair Waterway to the east. An industrial/ship dock area and log yard are located to the north and south, respectively.

The site as a whole is generally level. The former Murray-Pacific parcel had been used as a log storage yard in the past, and large portions of the ground surface had been covered with bark. Since then, the surface materials and bark have been removed. The parcel is now covered by crushed-rock surfacing. No structures currently occupy this area.

Portions of the former Rhone-Poulenc parcel were once occupied by a fertilizer plant. During the time of our initial site visit, we observed that the northern portion of this parcel had been developed with structures which made up the fertilizer facility, such as concrete tilt-up buildings, sheds and storage tanks. A drainage swale and small pond are also located in the northwest corner of the parcel. The southwestern portion of the parcel does not appeared to have been developed with structures associated with the fertilizer facility, and is vegetated with grass and scotchbroom, along with some scattered debris. The southeastern portion is occupied by a

large bermed soil stockpile. Since then, structures associated wit the fertilizer facility have been demolished, and the debris has been hauled from the site. In addition, the southern portion of the parcel has been partially graded, and the soil stockpile has been removed.

SUBSURFACE CONDITIONS

General

Subsurface conditions were evaluated by reviewing previously prepared geotechnical reports regarding the Murray-Pacific and Lincoln Avenue parcels and by reviewing logs of test pits excavated on the Rhone-Poulenc parcel for this project. The approximate locations of the explorations are shown on the Site Plan. Details of the explorations along with the logs are presented in Appendix A.

Based on the information reviewed, the site is generally underlain by fill soils overlying tidal delta deposits consisting of interbedded soft silt and loose sand. It appears that the fill consists of at least two distinct zones, described below as "Upper Fill" and "Lower Fill."

Upper Fill

In general, the upper fill soils encountered on the east half of the Rhone-Poulenc site and the Murray-Pacific site are fairly consistent and appear to have been placed in a controlled manner, while the upper fill encountered on the undeveloped portion of the Rhone-Poulenc site is somewhat variable in both composition and density.

The upper fill soils on the Murray-Pacific and eastern portion of the Rhone-Poulenc parcels generally consist of medium dense to very dense sand and gravel with varying amounts of silt with occasional cobbles and organics. The thickness of the upper fill on the Murray-Pacific parcel generally ranged from about 1½ to 3 feet, but is as thick as 6½ feet in some areas; the upper fill on the eastern portion of the Rhone-Poulenc parcel ranged in thickness from 2½ to 9 feet.

The upper fill soils on the western portion of the Rhone-Poulenc parcel generally consist of loose to dense sands with varying amounts of silt and gravel, and ranged in thickness from 2½ to 9½ feet. Areas of dense to very dense cemented sand fragments were encountered in Test Pits 1, 2, 3 and 12 (test pits dated October 2, 1997 on the Site Plan). The cemented fragments were encountered to depths of up to 7½ feet from the ground surface and ranged up to 4 feet in length. A light grey to white, soft to medium stiff clay and medium dense to dense silty sand were also encountered within portions of the upper fill zone, in Test Pits 2, 3, 12 and 13 (test pits dated October 2, 1997 on the Site Plan) at depths of 7½ to 9½, 2½ to 7, 3 to 4, and 6 to 7 feet below the ground surface, respectively. The whitish material encountered in Test Pit 3 was visible only on one-half of the test pit, as if the material had been dumped in an open excavation and buried.

The cemented sand fragments and the grey to white clay and silty sand may be fill materials related to former phosphate and alum production at the site.

Lower Fill

For the most part, the upper fill zone is directly underlain by what we believe to be an older fill zone. This lower fill was encountered throughout the site and generally consists of loose to medium dense dark grey to black fine to medium sand with varying amounts of silt. This unit generally extended to depths of about 7 to 10 feet below the ground surface on the Rhone-Poulenc parcel. On the Murray-Pacific parcel, the lower fill unit generally extended to depths ranging from 5 to 7 feet below the ground surface, but is as deep as 11 feet. In some explorations, a thin layer of medium stiff silt was encountered between the upper and lower fill units.

The upper portion of the lower fill layer within the northwestern corner of the Rhone-Poulenc portion has been cemented into a very dense condition. The material is in such a dense condition that one of the test pits excavated in the area had to be terminated due to refusal. The cementation does not appear to be the result of natural occurring physical processes. Fragments of this same material were found in the upper fill within the southern portion of the Rhone-Poulenc parcel, and also occurs along the sidewalls and possibly below the drainage swale and pond area. It is possible that the cementation is related to former Rhone-Poulenc production processes, and as such, the material may contain heavy metals and/or pesticides.

Delta Deposits

The first layer of tidal deposits encountered consisted primarily of very soft to soft organic silt and/or silt with organics (mainly grass and straw). This zone generally occurs from 5 to 11 feet below the ground surface. The test pit explorations on the Rhone-Poulenc parcel did not extend through this layer. Explorations on the Murray-Pacific and vacated Lincoln Avenue parcels indicate that this silt unit extends to depths varying from about 15 feet to 22 feet below the ground surface.

Very loose to medium dense sands with varying amounts of silt were encountered below the silt layer. Explorations on the vacated Lincoln Avenue parcel indicate that this sand extends to depths of about 31 to 38 feet below the ground surface. This sand unit is underlain by another layer of soft to stiff silt with varying amounts of organics that is 3 to 5 feet thick. This lower silt unit may be discontinuous on the extreme southern end of the site. The lower silt is in turn underlain by medium dense to dense sand with varying amounts of silt. Our knowledge of this area indicates that this sand extends to depths of up at least 180 feet below the ground surface, and may contain discontinuous silt lenses.

Ground Water

At the Rhone-Poulenc parcel, slow to moderate ground water seepage was generally encountered within the lower fill layer, at depths ranging from 6 to 9.5 feet below the ground

surface. Perched ground water was also encountered overlying the cemented sand fill in the northwest corner of the parcel.

Ground water was encountered at the Murray-Pacific parcel at approximately 17 to 22 feet below the ground surface, and at the Lincoln Avenue parcel at approximately 7 to 11 feet below the ground surface. The water table may rise to within 5 or 6 feet of the ground surface during periods of heavy rain and/or high tide. Perched ground water was also encountered at the interface of the lower sand fill and the silt. Ground water levels are expected to vary seasonally and with tidal influence.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

Based on the project information and our review of the subsurface conditions, it is our opinion that the site is suitable for the proposed development provided that steps are taken to accommodate postconstruction and potential seismic settlements of the proposed structures.

We understand that the existing site is currently about 3 feet below finish grade. The existing soft silts below the site are compressible and will settle under the weight of new fill and structural loads. In addition, there is risk that portions of the subsurface soils will liquefy during an earthquake with peak ground accelerations in excess of about 0.2g. Settlement tolerant structures may be satisfactorily supported on spread footings which bear on shallow spread footings founded on the dense existing fill soils or on compacted structural fill that extends to these soils.

Our specific evaluations and recommendations are discussed subsequently in the following sections.

SETTLEMENT CONSIDERATIONS

The weight of the new fill and structures will induce consolidation of the soft silts underlying the proposed building areas. Our analyses indicate that the anticipated loads will induce postconstruction settlement in the range of approximately 2 to 4 inches. About 75 percent of this settlement will be induced by the new fill. In order to reduce settlement of the buildings, we recommend that the new fill be placed at least 2 months in advance of building construction.

If the fill is placed in advance, we calculate postconstruction building settlements on the order of 1-inch. We estimate differential settlement of about a ½-inch per 50 feet. Loose or disturbed subgrade soils in footing excavations may result in increased settlement. All loose or disturbed material should be removed prior to concrete placement.

As an alternative, the structures can be pile supported. This option can be further evaluated, if appropriate.

SEISMIC CONSIDERATIONS

General

Several investigations (Dames & Moore, various; Rasmussen, et.al., 1974; USGS, 1975; Shannon & Wilson, Inc., 1981; Algermissen, 1983; GeoEngineers and others) have evaluated earthquake magnitudes and intensities as a function of return period. The result is a magnitude 7.5 earthquake with approximately a 10 percent probability of being equalled or exceeded in a 50 year period. The duration (acceleration time history) of this earthquake is generally assumed to be in the range of 23 to 30 seconds and is based largely on California models.

Peak ground accelerations developed by previous investigations vary significantly, mostly because of changing site conditions and the assumed distance to the epicenter. Factors such as the depth to bedrock, thickness of glacially consolidated soil, and thickness of recent alluvium or fill also influence peak ground accelerations. For a magnitude 7.5 earthquake, a maximum peak ground acceleration of about 0.3 is appropriate for the site, where thick alluvium overlies the glacially consolidated soil.

Soil Profile Type

As defined in the Uniform Building Code (UBC), 1994 Edition, the project site is located in Seismic Zone 3 with a Z factor of 0.3. The site soils are classified as classified as a Soil Profile Type S3.

Liquefaction Potential

Liquefaction refers to a condition where vibration or shaking of the ground, usually from earthquake forces, results in the development of excess pore pressures in saturated soils and subsequent loss of strength in the deposit of soil so affected. In general, soils which are susceptible to liquefaction include loose to medium dense clean to silty sands which are below the water table.

Our analyses of liquefaction potential indicates that for peak ground accelerations in excess of 0.2g, portions of the sand soils encountered below a depth of 14 to 21 feet could liquefy, most likely in isolated and discontinuous zones. Liquefaction induced at this acceleration could result in total settlements in the range of 10 to 16 inches, with differential settlements on the order of 5 to 8 inches per 100 feet. This settlement would likely be gradual due to the depth of overburden overlying the liquefiable soils.

If structures which are sufficiently flexible and ductile are designed and constructed liquefaction induced settlements could be tolerated without collapse of the buildings. Buildings designed not to collapse under liquefaction induced settlements would likely be so seriously distressed they would require replacement after an earthquake. This aspect should be evaluated by a structural engineer.

Alternatively, ground modification techniques may be employed to densify potentially liquefiable soils. However, due to the presence of the overlying soft silts, these methods may show only limited success. A deep foundation system is also an option. These options can be further evaluated, if appropriate.

EARTHWORK

General

We expect that the majority of the grading can be accomplished with conventional earth moving equipment. Some of the surficial site soils have significant fines contents and are moisture sensitive. These materials will be difficult to operate on or compact during wet weather conditions or if the moisture content of the soil is even moderately above the optimum percentage. Operation of heavy equipment at the site under wet conditions can be expected to result in considerable disturbance to the exposed subgrade soils. Once disturbed, the softened soils will likely have to be removed and replaced with drier suitable soil. Should excessive softening or rutting occur, it may become necessary to construct temporary staging areas or haul roads using quarry rock spalls. Because of these considerations, it is our opinion that the most economical time to perform earthwork is during extended periods of dry weather.

On-Site Soils

The existing fill materials may be satisfactorily re-used as structural fill provided that the soil is at a suitable moisture content at the time of placement.

If the moisture content of the site soils is significantly above the optimum percentage at the time of placement, it is highly unlikely that the required compaction can be achieved. Construction equipment quickly softens these soils when the moisture content is high. Once disturbed, the softened soils will likely have to be removed and replaced with drier suitable soil. Temporary staging areas and haul roads often have to be constructed of quarry rock spalls to maintain access to the site and work areas. Because of these considerations, it is our opinion that the most economical time to perform earthwork is during extended periods of dry weather.

If earthwork is planned for the wetter seasons, we recommend that all imported structural fill consist of granular materials such as pit run sand and gravel. The fines content (soil particles smaller than the No. 200 sieve) should be limited to no more than 5 percent.

Subgrade Preparation

The Murray-Pacific parcel has been previously graded, and initial grading and demolishing operations at the Rhone-Poulenc parcel have been completed. The majority of the site will likely require little surface preparation beyond recompaction of loose surficial soils.

We recommend that a member of our staff evaluate the exposed subgrade conditions. The exposed subgrade soil should be proofrolled with heavy rubber-tired equipment during dry

weather or probed with a ½-inch-diameter steel rod during wet weather. Soft, loose or otherwise unsuitable areas delineated should be recompacted, if practical, or overexcavated and replaced with structural fill, based on recommendations of our site representative.

The detention pond area located within the northwest portion of the Rhone-Poulenc parcel will have a portion of the maintenance building constructed over it. Currently, the pond contains water and approximately 2 to 20 inches of loose/soft material at the pond bottom. The thickest deposits located at or near the ends of the pond. We recommend at a minimum that the water in the pond be drained, and that the loose materials be stabilized, such as by adding cement, prior to filling. Alternatively, this material can be excavated and removed from the site; this material should be disposed of according to current state regulations.

We also understand that an 8-foot deep excavation was created east of the pond during demolition operations, which was subsequently filled with loose materials; a portion of the maintenance building is also to be constructed over it. We recommend that all loose materials be removed from the excavation. The excavation should be backfilled with structural fill compacted to the densities indicated in the "Structural Fill" section of this report.

STRUCTURAL FILL

All fill beneath structures or pavements should be placed as structural fill. Structural fill material should be free of debris, organic contaminants and rock fragments larger than 6 inches. The workability of material for use as structural fill will depend on the gradation and moisture content of the soil. As the amount of fines increases, soil becomes increasingly more sensitive to small changes in moisture content and adequate compaction becomes more difficult or impossible to achieve. If construction is performed during wet weather conditions, we recommend using fill consisting of well-graded sand and gravel containing less than 5 percent fines by weight based on the minus 3/4-inch fraction. If prolonged dry weather prevails during the earthwork and foundation installation phase of construction, a somewhat higher (up to 10 to 12 percent) fines content will be acceptable.

All structural fill should be uniformly compacted in horizontal lifts to at least 95 percent of the maximum dry density (MDD) determined in accordance with ASTM D-1557 (modified Proctor). Pavement subgrade soils and utility trench backfill should be compacted to at least 90 percent of the MDD up to within the upper 2 feet; the upper 2 feet should be compacted to at least 95 percent.

The lift thickness used during placement and compaction will depend on the moisture and gradation characteristics of the soil and the type of equipment being used. If necessary, the material should be moisture conditioned to near-optimum moisture content prior to compaction. During fill and backfill placement, sufficient testing of in-place density should be performed to verify that adequate compaction is being achieved.

The existing fill material, except for materials previously described, may be reused for structural fill during dry weather conditions, provided the material is at a suitable moisture content to be properly compacted. If wet weather construction is planned, we recommend using imported granular structural fill. We recommend that the imported material contain no more than about 5 percent fines. If the material is too wet when delivered to the site, or of it becomes overly wet from rain, it must be aerated and dried out prior to placement as fill. This can obviously be difficult during wet weather.

TEMPORARY CUT SLOPES

Temporary cut slopes are anticipated for construction of underground utilities. All temporary cut slopes and shoring must comply with the provisions of Title 296 WAC, Part N, "Excavation, Trenching and Shoring." The contractor performing the work must have the primary responsibility for protection of workmen and adjacent improvements, deciding whether or not to use shoring, and for establishing the safe inclination for open-cut slopes.

Temporary unsupported cut slopes more than 4 feet high may be inclined at 1½H to 1V (horizontal to vertical) within the existing fill material and native soils. Flatter slopes may be necessary if seepage is present on the cut face. Some sloughing and ravelling of the cut slopes should be expected. Temporary covering with heavy plastic sheeting should be used to protect these slopes during periods of wet weather.

PERMANENT SLOPES

We recommend that any permanent fill slopes be constructed no steeper than 2 to 1. To achieve uniform compaction, we recommend that fill slopes be over-built slightly and subsequently cut back to expose well compacted fill.

To reduce erosion, newly constructed slopes should be planted or hydroseeded shortly after completion of grading. Until the vegetation is established, some sloughing and ravelling of the slopes should be expected. These may require localized repairs and reseeding. Temporary covering, such as clear heavy plastic sheeting, jute fabric, loose straw or excelsior matting could be used to protect the slopes during periods of rainfall.

FOUNDATION SUPPORT

General

Flexible structures may be supported on shallow foundations such as isolated spread footings and continuous strip footings. The footings should be constructed on dense existing fill soils or on properly compacted structural fill (95 percent of the MDD) which extends to these soils.

Foundation Design

We recommend a minimum width of 16 inches for continuous wall footings and 2 feet for isolated footings. All footing elements should be embedded at least 18 inches below adjacent external grade where the ground is flat. We recommend that all disturbed soils within the footing excavations be recompacted, if practical, or overexcavated and replaced with structural fill prior to concrete placement.

In general, footings founded on dense existing fill or structural fill prepared as described above may be designed using an allowable soil bearing pressure of 2,500 pounds per square foot (psf) for combined dead and long-term live loads, exclusive of the weight of the footing and any overlying backfill. This value may be increased by one-third when seismic or wind loads are considered.

We recommend that all foundation subgrades be examined by a representative of our firm to verify adequate bearing surface preparation prior to concrete placement.

Concrete should be placed as soon as practical after preparation of the footing excavations. If not, the footing subgrade should be protected by pouring a lean concrete mat immediately after excavation.

Lateral Load Resistance

Lateral loads can be resisted by a combination of friction between the footing and the supporting soil, and by the passive lateral resistance of the soil surrounding the embedded portions of the footings. A coefficient of friction between concrete and soil of 0.35 and a passive lateral resistance corresponding to an equivalent fluid density of 250 pounds per cubic foot (pcf) may be used for design. The friction coefficient and passive lateral resistance are allowable values.

If soils adjacent to footings are disturbed during construction, the disturbed soils must be recompacted, otherwise the lateral passive resistance value must be reduced.

FLOOR SLAB SUPPORT

The floor slabs can be supported on dense native soil or structural fill if site preparation is accomplished as previously recommended. The subgrade surface should be evaluated as recommended above. We recommend that the floor slabs be directly underlain by a minimum 4-inch thickness of granular base course material consisting of crushed rock or well graded sand and gravel which contains less than 3 percent fines based on the minus 3/4-inch fraction. If dry slabs are required (e.g., where adhesives are used to anchor carpet or tile to the slab), a waterproof liner, at least 6 mils thick, should be placed as a vapor barrier below the slab. A 2-inch thickness of clean sand should be placed over the vapor barrier to protect the liner and serve as a leveling course.

SUBGRADE WALLS

Design Parameters

The proposed truck scales may include subgrade walls. The subgrade walls should be designed as retaining walls. Retaining structures should be designed for active lateral earth pressure using an equivalent fluid density of 35 pcf (pounds per cubic foot) for level well-drained backfill. This assumes that the walls are not restrained. A surcharge equivalent to 2 feet of fill should be included to account for vehicle loads where vehicles can approach to within 1/2 the height of the wall. Specific structural fill recommendations are presented in the "Structural Fill" section of this report.

The values for soil bearing, frictional resistance and passive resistance presented above for foundation design are applicable to retaining wall design. Appropriate factors of safety should be applied to these values with respect to bearing capacity, sliding, and overturning.

Backdrainage

These pressures assume the walls are fully backdrained and hydrostatic pressures are prevented from building up behind the walls. To provide the required drainage behind the retaining walls, we recommend that backfill within 2 feet of walls consist of free-draining material. The free-draining material should conform to Section 9-03.12(2), Gravel Backfill for Walls of the WSDOT 1996 Standard Specifications, except that the fines content should not exceed 3 percent passing the No. 200 sieve. The drainage material should be separated from the surrounding soils by a nonwoven geotextile, such as Mirafi 140N (or equivalent), to limit clogging with fine soil particles. The free draining material should be covered at the ground surface with 1 foot of less permeable material.

A 4-inch-diameter perforated collector pipe should be installed within the free-draining material at the base of the wall to provide an outlet for any accumulated water. We recommend using heavy-wall rigid pipe.

We recommend that no storm water discharge into the perforated pipe providing wall drainage. Collected water should be tightlined to appropriate collection points.

Construction Considerations

Care should be taken by the contractor during filling adjacent to walls to avoid overstressing the walls. Fill placed within about 5 feet of walls should be compacted with hand-operated or small self-propelled equipment. Heavy compactors should not be used within about 5 feet of walls.

SIGN POLES

Sign poles and light standard foundations can be supported by either shallow footings or drilled shafts. We recommend that bearing and lateral load resistance values from the "Foundations Support" section of this report be used for design.

If shallow footings are used for support, we recommend that all disturbed soils within the footing excavations be recompacted, if practical, or overexcavated and replaced with structural fill prior to concrete placement. If drilled shafts are used, the foundations should be drilled with equipment that limits the amount of loose cuttings or slough at the bottom of the drilled hole. All slough and loose cuttings should be removed from the hole prior to placement of foundation concrete. We recommend that a qualified individual observe the construction of the foundations and verify the adequacy of the supporting soils.

DRAINAGE

Perimeter foundation drains are recommended for the buildings. Foundation drains should be constructed using smooth-walled, perforated PVC pipe. The pipe invert should be slightly below the bottom of the footing. The PVC pipe should be bedded in drainage material which consists of washed rock or gravel. The drain should be at least 12 inches thick and should extend within 6 inches of the ground surface. The ground surface should be sloped away from the structure for a minimum distance of 5 feet.

Roof drains should be tightlined away from the structures and should not be connected to the foundation drains. Foundation and roof drains should drain to appropriate discharge locations. An adequate number of cleanouts should be incorporated into the design of the drains in order to provide access for regular maintenance.

Parking area surface water should also be controlled and collected. Curbs or other appropriate measures should be used to direct the surface water runoff to collection points. In paved areas, the catch basins should be perforated so that water in the base course can drain into the catch basin. Where a single catch basin drains a large area, a 2-inch perforated pipe, 10 or more feet long, may be added to facilitate drainage within the base course. No water should be discharged onto or near slope areas.

CONSTRUCTION DEWATERING

Although we expect the ground water table to be lower during the summer than during the winter, construction of subsurface structures may require dewatering regardless of when the construction occurs. However, the effort required to dewater the construction sites should be significantly less if construction occurs during the summer.

Dewatering measures consisting of ditches and sumps within excavations, and well points and/or wells may be required to handle ground water during construction. We recommend that the ground water table be lowered to and maintained at least 2 feet below the planned bottom of the excavation during construction. In our opinion, the contractor selected for the construction of the subsurface structures should be responsible for design and installation of the temporary dewatering system. This dewatering system should include provisions for disposal of the collected water.

OTHER CONSTRUCTION CONSIDERATIONS

During excavation of utility trenches, materials which may contain concentrations of heavy metals and/or pesticides could be encountered. These include the cemented sand and the white to light grey clays and silty sands encountered on the Rhone-Poulenc parcel. The cemented sand located on the northwestern portion of the Rhone-Poulenc parcel are in a very dense condition, and excavation through the cemented materials may be difficult.

LIMITATIONS

We have prepared this report for use by The McGranahan Partnership, The Port of Tacoma and their agents for use in design of a portion of this project. The data and report should be provided to prospective contractors for their bidding or estimating purposes, but our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

If there are any changes in the loads, grades, locations, configurations or type of facilities to be constructed, the conclusions and recommendations presented in this report might not be fully applicable. If such changes are made, we should be given the opportunity to review our conclusions and recommendations and to provide written modification or verification of these recommendations. When the design is finalized, we recommend that we be given the opportunity to review those portions of the specifications and drawings which relate to geotechnical considerations to see that our recommendations have been interpreted and implemented as intended.

There are possible variations in subsurface conditions between the locations of the explorations and also with time. Some contingency for unanticipated conditions should be included in the project budget and schedule. We recommend that sufficient monitoring, testing and consultation be provided by our firm during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork and foundation installation activities comply with the contract plans and specifications.

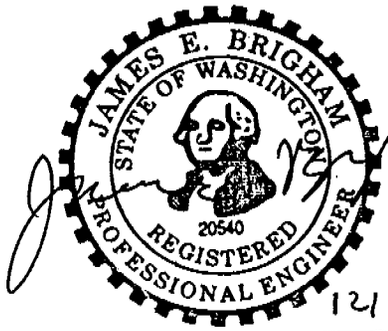
Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No other conditions, express or implied, should be understood.

The conclusions and recommendations in this report should be applied in their entirety. We are available to review the final design and specifications to see that our recommendations are properly interpreted. If there are any questions concerning this report or if we can provide additional services, please call.

Yours very truly,

GeoEngineers, Inc.

James Lee
Geotechnical Engineer



12/15/97

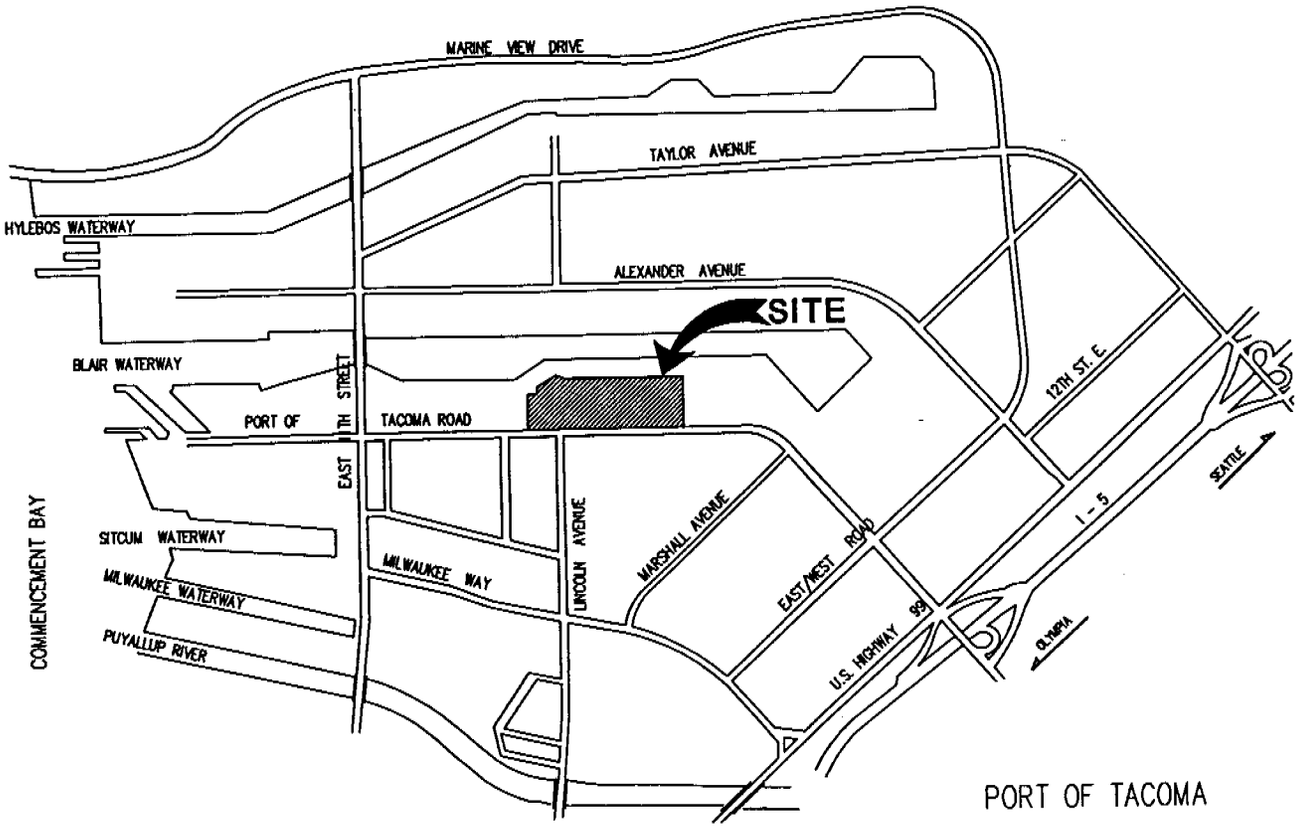
EXPIRES 03-10-99

James E. Brigham
Senior Engineer

Gary W. Henderson
Principal

JL:GWH:vc
Document ID: 0454045R.WPD

Attachments



PORT OF TACOMA

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NOT TO SCALE

Reference: Drawing provided by the Port of Tacoma, contract no. 978050. drawing titled "Hyundai Merchant Marine Terminal Buildings, Guardhouse Building".

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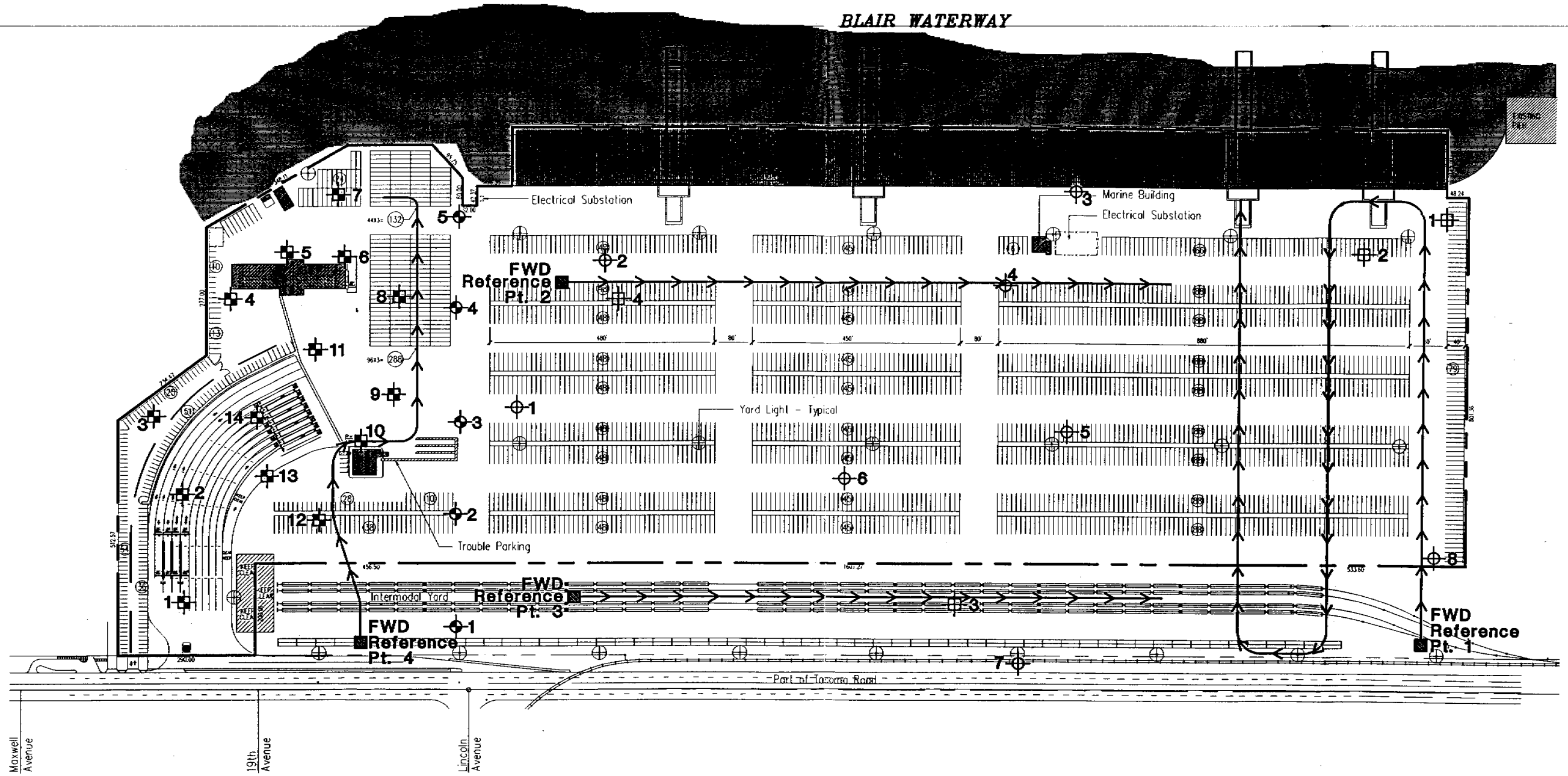
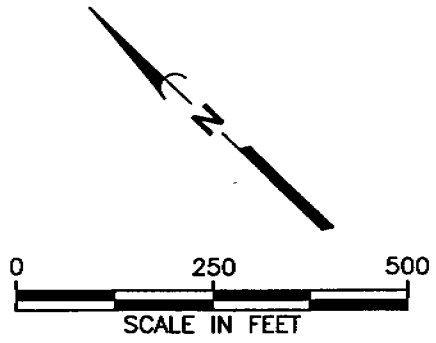
GeoEngineers

VICINITY MAP

FIGURE 1





Note:
The locations of all features shown are approximate.

Reference: Base drawings provided by the Port of Tacoma, contract no. 978050.

EXPLANATION:

- 1 BORING NUMBER AND APPROXIMATE LOCATION FROM 12/21/95
- 1 TEST PIT NUMBER AND APPROXIMATE LOCATION FROM 8/2/97
- 1 BORING NUMBER AND APPROXIMATE LOCATION FROM 12/2/92
- 1 TEST PIT NUMBER AND APPROXIMATE LOCATION FROM 12/2/92
- **FWD** FALLING WEIGHT DEFLECTOMETER

Geo Engineers

SITE PLAN

FIGURE 2

045403803:121597
0454038B.DWG
JL:SPS

APPENDIX A

APPENDIX A

REVIEW OF SUBSURFACE INFORMATION

Subsurface conditions were evaluated by reviewing previously prepared geotechnical reports regarding the Murray-Pacific and Lincoln Avenue parcels and by reviewing logs of test pits excavated on the Rhone-Poulenc parcel for the Port of Tacoma. The following information was reviewed:

- Fourteen test pit logs for the Rhone-Poulenc parcel, excavated and logged by GEI (GeoEngineers, Inc.) on October 2, 1997. Test pits could not be excavated on the southeastern portion of the parcel due to the presence of stockpiled soil on that portion of the parcel at the time our explorations were performed.
- Geotechnical report for the vacated Lincoln Avenue parcel by GEI on December, 21, 1995.
- Geotechnical report for the Murray-Pacific parcel dated December 2, 1992.

Our representatives continuously monitored the explorations, visually classified the soils encountered, and maintained logs of the subsurface conditions. The soils were classified in the field in general accordance with the system described on Figure A-1, ASTM D-2488. A key to the boring log symbols is included as Figure A-2. The test pit logs for the Phone-Poulenc parcel are included as Figure A-3 through A-8, and the boring logs for the vacated Lincoln Avenue parcel are shown as Figure A-9 through A-12. Test pit and boring logs for the Murray-Pacific parcel are included as Figures A-13 through A-23.

SOIL CLASSIFICATION SYSTEM

MAJOR 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 GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND More Than 50% of Coarse Fraction Passes No. 4 Sieve	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS More Than 50% Passes No. 200 Sieve	SILT AND CLAY Liquid Limit Less Than 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY Liquid Limit 50 or More	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

NOTES:

1. Field classification is based on visual examination of soil in general accordance with ASTM D2488-90.
2. Soil classification using laboratory tests is based on ASTM D2487-90.
3. Descriptions of soil density or consistency are based on interpretation of blow count data, visual appearance of soils, and/or test data.

SOIL MOISTURE MODIFIERS:

Dry - Absence of moisture, dusty, dry to the touch

Moist - Damp, but no visible water

Wet - Visible free water or saturated, usually soil is obtained from below water table

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SOIL CLASSIFICATION SYSTEM

FIGURE A-1

LABORATORY TESTS:

CA Chemical Analysis

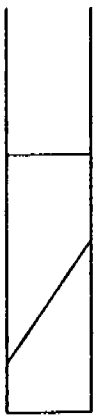
FIELD SCREENING TESTS:

Headspace vapor concentration data given in parts per million

Sheen classification system:

NS No Visible Sheen
SS Slight Sheen
MS Moderate Sheen
HS Heavy Sheen
NT Not Tested

SOIL GRAPH:



SM Soil Group Symbol (See Note 2)

Distinct Contact Between Soil Strata

Gradual or Approximat Location of Change Between Soil Strata

Water Level

Bottom of Boring

BLOW-COUNT/SAMPLE DATA:

Blows required to drive a 2.4-inch I.D. split-barrel sampler 12 inches or other indicated distances using a 300-pound hammer falling 30 inches.

22 Location of relatively undisturbed sample

12 Location of disturbed sample

17 Location of sampling attempt with no recovery

Blows required to drive a 1.5-inch I.D. (SPT) split-barrel sampler 12 inches or other indicated distances using a 400-pound hammer falling 30 inches.

10 Location of sample obtained in general accordance with Standard Penetration Test (ASTM D-1586) procedures

26 Location of SPT sampling attempt with no recovery

Location of grab sample

"P" indicates sampler pushed with weight of hammer or against weight of drill rig.

NOTES:

1. The reader must refer to the discussion in the report text, the Key to Boring Log Symbols and the exploration logs for a proper understanding of subsurface conditions.

2. Soil classification system is included.

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KEY TO BORING LOG SYMBOLS

FIGURE A-2

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 1
0.0 - 2.5	SP-SM	Brown gravelly fine to coarse sand with silt, organic material, occasional cobbles and cemented sand (dense, moist) (fill)
2.5 - 8.0	SP	Gray fine to medium sand with organic material and a trace of silt (medium dense, moist)
8.0 - 8.5	ML	Gray silt with grass (soft, moist)
		Test pit completed at a depth of 8.5 feet on 10/02/97
		Moderate ground water seepage observed at an approximate depth of 5.0 feet
		Slight caving observed below 5.0 feet
		Disturbed soil samples obtained at depths of 1.5, 3.0 and 8.0 feet
		TEST PIT 2
0.0 - 7.5	SP-SM	Brownish gray fine to medium sand with silt and large fragments of cemented sand (medium dense, moist) (fill)
		Grades to with organic material at 4.0 feet
7.5 - 9.5	CL	Grayish white silty clay (soft, moist)
9.5 - 11.0	SM	Dark brownish black silty fine sand with fine organic material (medium dense, wet)
		Test pit completed at a depth of 11.0 feet on 10/02/97
		Moderate ground water seepage observed at an approximate depth of 9.5 feet
		Severe caving observed below 8.5 feet
		Disturbed soil samples obtained from depths of 4.0, 8.0 and 10.5 feet

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

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LOG OF TEST PIT

FIGURE A-3

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 3
0.0 - 2.5	SP	Brown fine to coarse sand with gravel, occasional organic material and cemented sand (dense, moist) (fill)
2.5 - 7.0	SP/SP-SM	Dark brownish gray to white fine to medium sand with silt, trace of silt and occasional organic material (medium dense, moist) (fill)
7.0 - 11.0	ML	Dark brown silt with organic material (soft, wet)
		Test pit completed at a depth of 11.0 feet on 10/02/97
		Moderate ground water seepage at an approximate depth of 6.0 feet
		Moderate caving below 6.0 feet
		Disturbed soil sample obtained at a depth of 4.0 feet
		TEST PIT 4
0.0 - 1.0	SM	Dark gray to purple silty sand with gravel (dense, moist) (cemented) (fill)
1.0 - 2.0	GP-GM	Orangish rust brown sandy fine to coarse gravel with silt (dense, moist) (fill)
2.0 - 5.0	SP	Orangish brown to brown fine to medium sand with occasional gravel (medium dense, moist) (fill)
5.0 - 5.25	SP	Dark gray to purple fine to medium sand (very dense, moist) (cemented)
		Test pit completed at a depth of 5.25 on 10/02/97
		Slow ground water seepage at an approximate depth of 5.0 feet
		No caving observed

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 5
0.0 - 1.5	GP-GM	Orangish brown sandy gravel with silt (very dense, moist) (fill)
1.5 - 4.0	SP	Dark brown fine to medium sand with a trace of silt (dense, moist) (fill)
4.0 - 5.0	SM/ML	Interbedded silty fine sand/sandy silt (medium dense, moist) (fill)
5.0 - 8.0	SP	Dark grayish black fine to medium sand (dense, moist) (cemented)
		Grades to medium dense and uncemented at 6.5 feet
8.0 - 11.0	ML	Light gray silt with organic material (soft, moist to wet)
		Test pit completed at a depth of 11.0 feet on 10/02/97
		Moderate ground water seepage observed at an approximate depth of 6.5 feet
		No caving observed
		TEST PIT 6
0.0 - 1.5	GM	Brown silty gravel with sand and occasional cobbles (dense, moist) (fill)
1.5 - 3.0	SP	Dark gray fine to medium sand with occasional gravel (dense, moist) (fill)
3.0 - 5.5	SP/GP	Brown sandy gravel/gravelly sand with occasional cobbles (dense, moist to wet) (fill)
		Grades to light brown at 5.0 feet
5.5 - 7.0	SM	Light brownish tan sand with silt, gravel and occasional organic material (dense, moist to wet) (fill)
7.0 - 8.0	SP	Black fine to medium sand (medium dense, wet)
8.0 - 10.0	ML	Gray to dark gray silt with organic material (soft, wet)
		Test pit completed at a depth of 10.0 feet on 10/02/97
		Moderate ground water seepage observed at an approximate depth of 7.5 feet
		Slight caving observed

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 7
0.0 - 5.5	SP/GP	Brown sandy gravel/gravelly sand with a trace of silt and occasional cobbles (dense, moist) (fill)
5.5 - 9.0	SP-SM	Light brownish brown gravelly sand with silt and occasional cobbles (dense, moist to wet) (fill)
9.0 - 10.0	SP	Dark grayish black fine to medium sand (medium dense, wet)
10.0 - 11.0	ML	Dark grayish black silt with organic material (dense, moist)
		Test pit completed at a depth of 11.0 feet on 10/02/97
		Rapid ground water seepage observed at an approximate depth of 9.0 feet
		No caving observed
		TEST PIT 8
0.0 - 2.5	SP	Brown gravelly fine to coarse sand with occasional cobbles and a trace of silt (dense, moist) (fill)
2.5 - 8.5	SP	Dark grayish black fine to medium sand with a trace of silt and occasional gravel (loose to medium dense, moist)
		Test pit completed at a depth of 8.5 feet on 10/02/97
		No ground water seepage observed
		Severe caving observed below 5.0 feet
		TEST PIT 9
0.0 - 1.0	GP-GM	Light brown sandy gravel with silt (dense, moist) (fill)
1.0 - 6.0	SP	Brown fine to medium sand with occasional gravel (dense, moist) (fill)
6.0 - 9.5	SP	Dark grayish black fine to medium sand with a trace of silt (loose to medium dense, moist)
9.5 - 10.0	OL	Light orangish brown organic silt (soft, moist)
		Test pit completed at a depth of 10.0 feet on 10/02/97
		No ground water seepage observed
		Severe caving observed below 6.0 feet
		Disturbed soil sample obtained at a depth of 9.5 feet

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

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LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 10
0.0 - 2.0	GP-GM	Brown to orangish brown sandy gravel with silt (dense, moist) (fill)
2.0 - 5.0	SP	Brown fine to medium sand with occasional gravel and metal debris (dense, moist) (fill)
5.0 - 6.5	SP-SM	Gray fine to medium sand with shells (loose to medium dense, moist)
		Grades to no shells at 6.0 feet
6.5 - 9.0	SP	Black fine to medium sand (loose to medium dense, wet)
		Test pit completed at a depth of 9.0 feet on 10/02/97
		No ground water seepage observed
		Severe caving below 5.0 feet
		Log encountered at 8.5 feet
		TEST PIT 11
0.0 - 3.5	GP-GM	Orangish brown sandy gravel with silt and occasional cobbles (dense, moist) (fill)
3.5 - 7.5	SP	Blackish purple fine to medium sand with occasional gravel (medium dense, moist)
		Test pit completed at a depth of 7.5 feet on 10/02/97
		No ground water seepage observed
		Severe caving observed below 5.0 feet
		TEST PIT 12
0.0 - 3.0	SP-SM	Dark brown fine sand with silt and heavy roots (loose, moist) (fill)
3.0 - 4.0	SM	Light brown to white silty sand with gravel (dense, moist) (fill)
4.0 - 7.0	SP	Dark brown to brown fine to medium sand with cemented fragments of sand with silt (dense, moist) (fill)
7.0 - 9.0	SP	Dark gray to black fine to medium sand with a trace of silt (medium dense, wet)
		Test pit completed at a depth of 9.0 feet on 10/02/97
		Slow ground water seepage observed at an approximate depth of 8.0 feet
		Severe caving observed below 7.0 feet

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

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LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 13
0.0 - 3.0	GP-GM	Orange brown sandy gravel with silt and roots (loose to medium dense, wet) (fill)
3.0 - 6.0	GM	Orange brown silty gravel with sand and organic material (dense, moist) (fill)
6.0 - 7.0	CL	Light gray to white silty clay (medium stiff, moist) (fill)
7.0 - 10.5	SP	Gray to black fine to medium sand (medium dense, wet)
		Test pit completed at a depth of 10.5 feet on 10/02/97
		Slow ground water seepage observed at an approximate depth of 3.5 feet
		Moderate ground water seepage observed at an approximate depth of 9.0 feet
		Severe caving observed below 8.0 feet
		TEST PIT 14
0.0 - 0.5	GP-GM	Orangish brown sandy gravel with silt and cobbles (dense, moist) (fill)
0.5 - 5.0	SP	Brown fine to medium sand with occasional gravel (dense, moist) (fill)
5.0 - 8.0	SP	Blackish gray fine to medium sand with a trace of silt (loose to medium dense, wet)
		Test pit completed at a depth of 8.0 feet on 10/02/97
		No ground water seepage observed
		Severe caving observed below 4.0 feet

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

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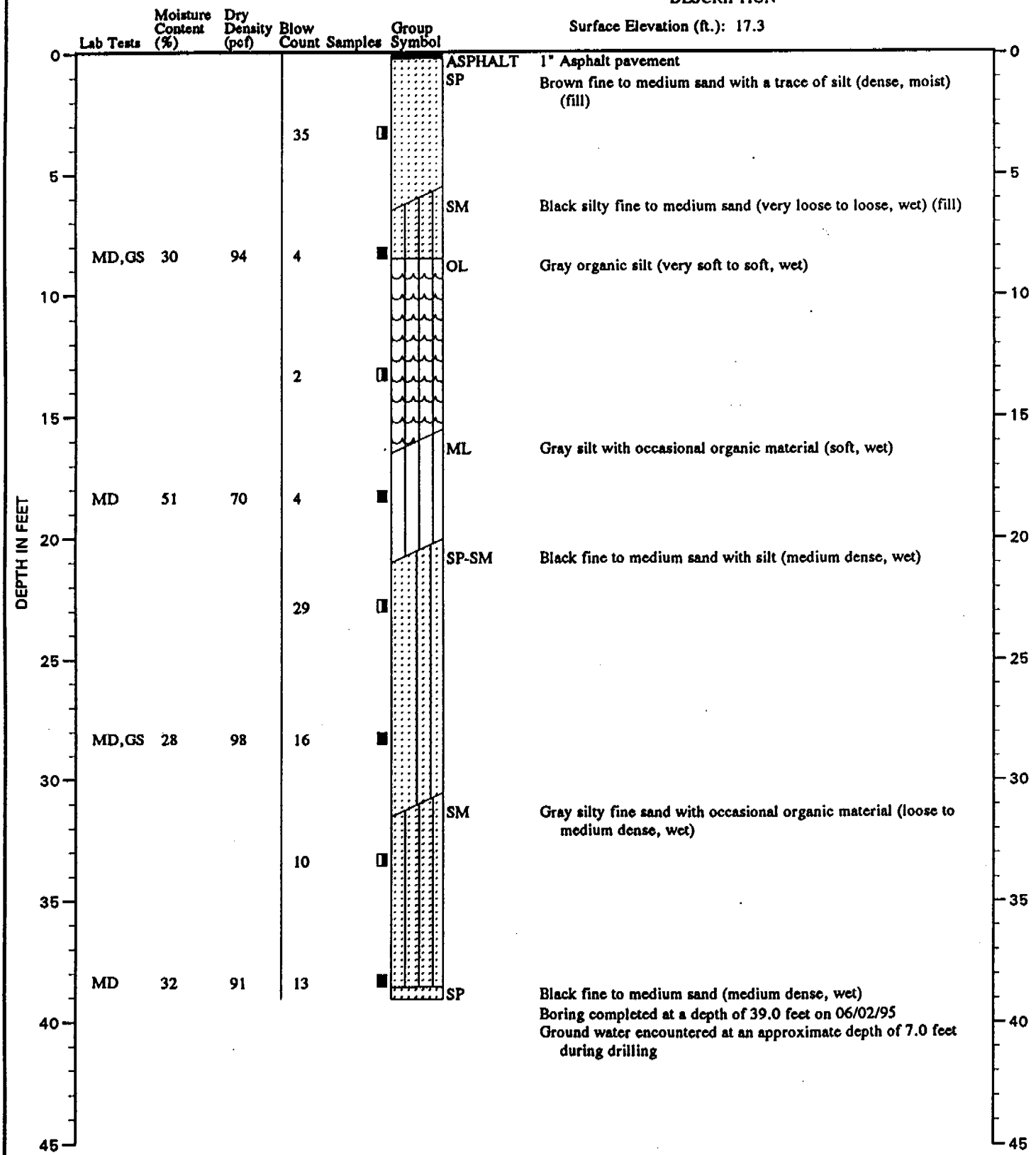
LOG OF TEST PIT

FIGURE A-8

TEST DATA

BORING B-1



Note: See Figure for explanation of symbols

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LOG OF BORING

FIGURE A-9

TEST DATA

BORING B-2

Lab Tests	Moisture Content (%)	Dry Density (pcf)	Blow Count	Samples	Group Symbol	DESCRIPTION (Surface Elevation (ft.): 17.3)
					ASPHALT	1 inch asphalt pavement
					SP	Brown fine to medium sand (very loose, moist) (fill)
MD	6	89	2			
					OL	Light brown organic silt (very loose to loose, moist)
			4			
					ML	Gray silt with organic material (very loose, wet)
MD	40	82	2			
					SP	Black fine to medium sand (medium dense, wet)
			20			
MD	28	96	13			Black fine to medium sand (medium dense, wet)
			26			
					OL	Light brown organic silt (soft, wet)
MD	54	72	4			
					SP	Black fine to medium sand (medium dense, wet)

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45

Boring completed at a depth of 39.0 feet on 06/02/95
Ground water encountered at an approximate depth of 11.0 feet during drilling

Note: See Figure for explanation of symbols

JEB:GWH:vc: 12/20/95

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LOG OF BORING

FIGURE A-10

TEST DATA

BORING B-3

Lab Tests	Moisture Content (%)	Dry Density (pcf)	Blow Count	Samples	Group Symbol	DESCRIPTION
						Surface Elevation (ft.): 17.3
					ASPHALT	1 inch asphalt pavement
					SP	Brown fine to medium sand (medium dense, moist) (fill)
			26			
MD	66	64	2		ML	Gray silt with organic material (very soft to soft, wet)
			2			
MD	24	102	10		SP	Black fine to medium sand (loose to medium dense, wet)
			26			
					SM	Black silty fine sand (medium dense, wet)
MD	29	94	13			
			3		ML	Gray silt with organic material (soft, wet)
					SM	Black silty fine sand with organic material (medium dense, wet)
MD	30	91				

Boring completed at a depth of 39.0 feet on 06/05/95
Ground water encountered at an approximate depth of 7.0 feet

DEPTH IN FEET

0, 5, 10, 15, 20, 25, 30, 35, 40, 45

Note: See Figure for explanation of symbols

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LOG OF BORING

FIGURE A-11

TEST DATA

BORING B-4

Lab Tests	Moisture Content (%)	Dry Density (pcf)	Blow Count	Samples	Group Symbol	DESCRIPTION
						Surface Elevation (ft.): 17.2
					SP	Brown fine to coarse sand with gravel (loose, moist) (fill)
MD	8		6			
			35			
					ML	Gray silt with organic material (very soft to soft, wet)
MD	58	70	2			
					SM	Black silty fine to medium sand (medium dense, wet)
			13			
GS,M	27		11			
			37			
					ML	Gray silt with occasional organic material
MD	30	95	22		SP	Black fine to medium sand with a trace of silt (medium dense, wet)
			37			

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45

Boring completed at a depth of 39.0 feet on 06/05/95
Ground water encountered at an approximate depth of 10.0 feet during drilling

Note: See Figure for explanation of symbols

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LOG OF BORING

FIGURE A-12

TEST DATA

BORING B-5

Lab Tests	Moisture Content (%)	Dry Density (pcf)	Blow Count	Samples	Group Symbol	DESCRIPTION (Surface Elevation (ft.): 17.2)
			13		SP	Brown fine to medium sand with a trace of silt (medium dense, moist)
MD	110	40	2		ML	Gray silt with organic material (very soft to soft) (wet)
			3			
MD	36	86	3			
			3		SM	Black silty fine sand with occasional organic material (very loose, wet)
					SP-SM	Black fine to medium sand with silt and occasional organic material (loose, wet)
MD	26	99	9			
			10		ML	Gray silt with a trace of organic material (medium stiff)
MD	25	98	20		SP	Black fine to medium sand with a trace of silt (medium dense, wet)

Boring completed at a depth of 39.0 feet on 06/05/95
Ground water encountered at an approximate depth of 7.0 feet during drilling

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45

Note: See Figure for explanation of symbols

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LOG OF BORING

FIGURE A-13

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 1
0.0 - 3.0	GP-GM	Gray silty coarse gravel with sand (very dense, moist) (fill)
3.0 - 3.5	SP	Gray fine to medium sand with a trace of silt (very dense, moist) (fill)
3.5 - 4.0	ML	Gray silt with a trace of sand (very stiff, moist) (fill)
4.0 - 4.5	SP	Black fine to coarse sand with a trace of silt (dense to very dense, moist) (some black staining) (fill)
4.5 - 7.5	SP	Brown mottled fine to coarse sand (very dense, moist) (fill)
7.5 - 8.5	ML-CL	Gray clayey silt (very stiff, moist to wet)
		Test pit completed at 8.0 feet on 08/25/92
		Ground water encountered at approximately 7.5 feet
		TEST PIT 2
0.0 - 1.5	GP-GM	Gray gravel with sand and silt (very dense, moist) (fill)
1.5 - 2.0	SP	Gray fine to medium sand with a trace of silt (dense, moist) (fill)
2.0 - 2.5	ML	Gray silt (stiff to very stiff, moist) (fill)
2.5 - 3.0	SP	Gray fine to medium sand with a trace of silt (dense to very dense, moist) (fill)
3.0 - 3.5	ML	Gray silt (very stiff, moist) (fill)
3.5 - 6.5	SP	Black fine to coarse sand (dense to very dense, moist) grades to brown mottled sand
6.5 - 8.0	ML-CL	Dark gray clayey silt (very stiff, moist to wet)
		Test pit completed at 8.0 feet on 08/25/92
		Ground water encountered at approximately 6.5 feet

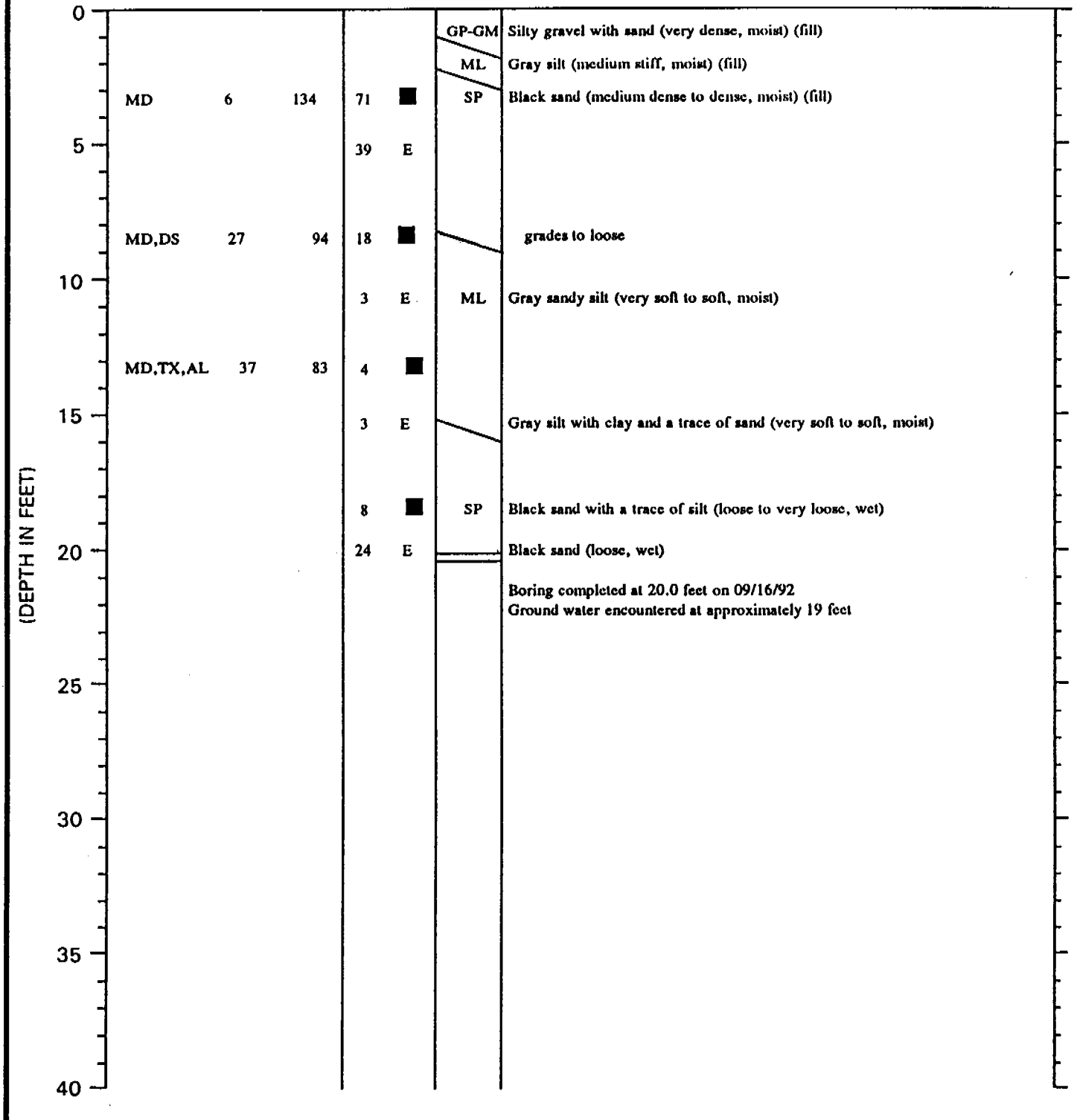
THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

LOG OF TEST PIT

DEPTH BELOW GROUND SURFACE (FEET)	SOIL GROUP CLASSIFICATION SYMBOL	DESCRIPTION
		TEST PIT 3
0.0 - 1.5	GP-GM	Gray gravel with sand and silt (very dense, moist) (fill)
1.5 - 7.0	SP	Gray fine to medium sand (very dense, moist) (fill) grades to dark gray fine to coarse sand with organic matter, shell fragments and occasional cobbles (very dense, moist)
7.0 - 8.0	ML-CL	Gray clayey silt (very stiff, moist to wet)
		Test pit completed at 8.0 feet on 08/25/92
		Ground water encountered at approximately 7 feet
		TEST PIT 4
0.0 - 1.5	GP-GM	Gray gravel with sand and silt (very dense, moist) (fill)
1.5 - 6.0	SP	Dark gray sand with occasional silt lenses (dense, moist) (fill)
6.0 - 7.0	SM	Dark gray silty sand (very dense, moist) (fill)
7.0 - 8.0	ML	Dark gray sandy silt (stiff to very stiff, moist to wet)
		Test pit completed at 8.0 feet on 08/25/92
		Ground water encountered at approximately 7 feet

THE DEPTHS ON THE TEST PIT LOGS, ALTHOUGH SHOWN TO 0.1 FOOT, ARE BASED ON AN AVERAGE OF MEASUREMENTS ACROSS THE TEST PIT AND SHOULD BE CONSIDERED ACCURATE TO 0.5 FOOT.

BORING NO. 1



See Figure A-4 for explanation of symbols

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LOG OF BORING

FIGURE A-16

BORING NO. 2

(DEPTH IN FEET)	Lab Tests	Moisture Content	Dry Density	Blow Count	Samples	Group Symbol	DESCRIPTION
0						GP-GM	Silty gravel with sand (very dense, moist) (fill)
						ML	Gray silt (medium stiff, moist) (fill)
	MD,TX	11	94	39	■	SP-SM	Black sand with silt (medium dense, moist) (fill)
5				24	E		grades to loose
				2	■	ML	Gray silt with clay (very soft, moist)
10				11	E	OL	Black organic silt with clay (medium stiff, moist)
				3	■	MH	Gray silt with clay and organic matter (very soft to soft, moist)
15				3	E		contains interbedded sand
	MD	22	105	7	■	SM	Gray silty sand (very loose, wet)
				33	E		
20							Boring completed at 20 feet on 09/16/92 Ground water encountered at approximately 19 feet
25							
30							
35							
40							

TEST DATA

See Figure A-4 for explanation of symbols

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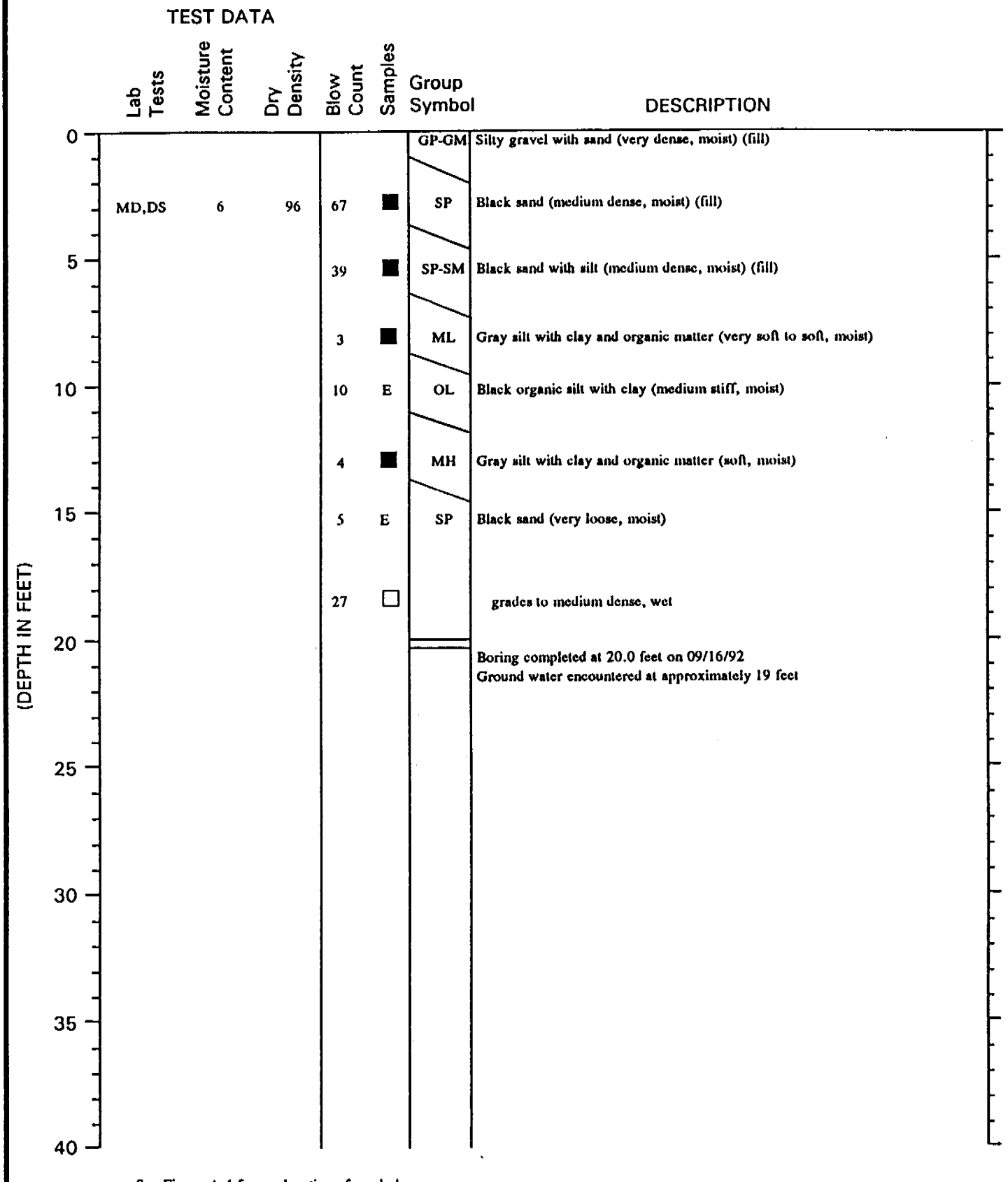
LOG OF BORING

FIGURE A-17

BORING NO. 3



See Figure A-4 for explanation of symbols

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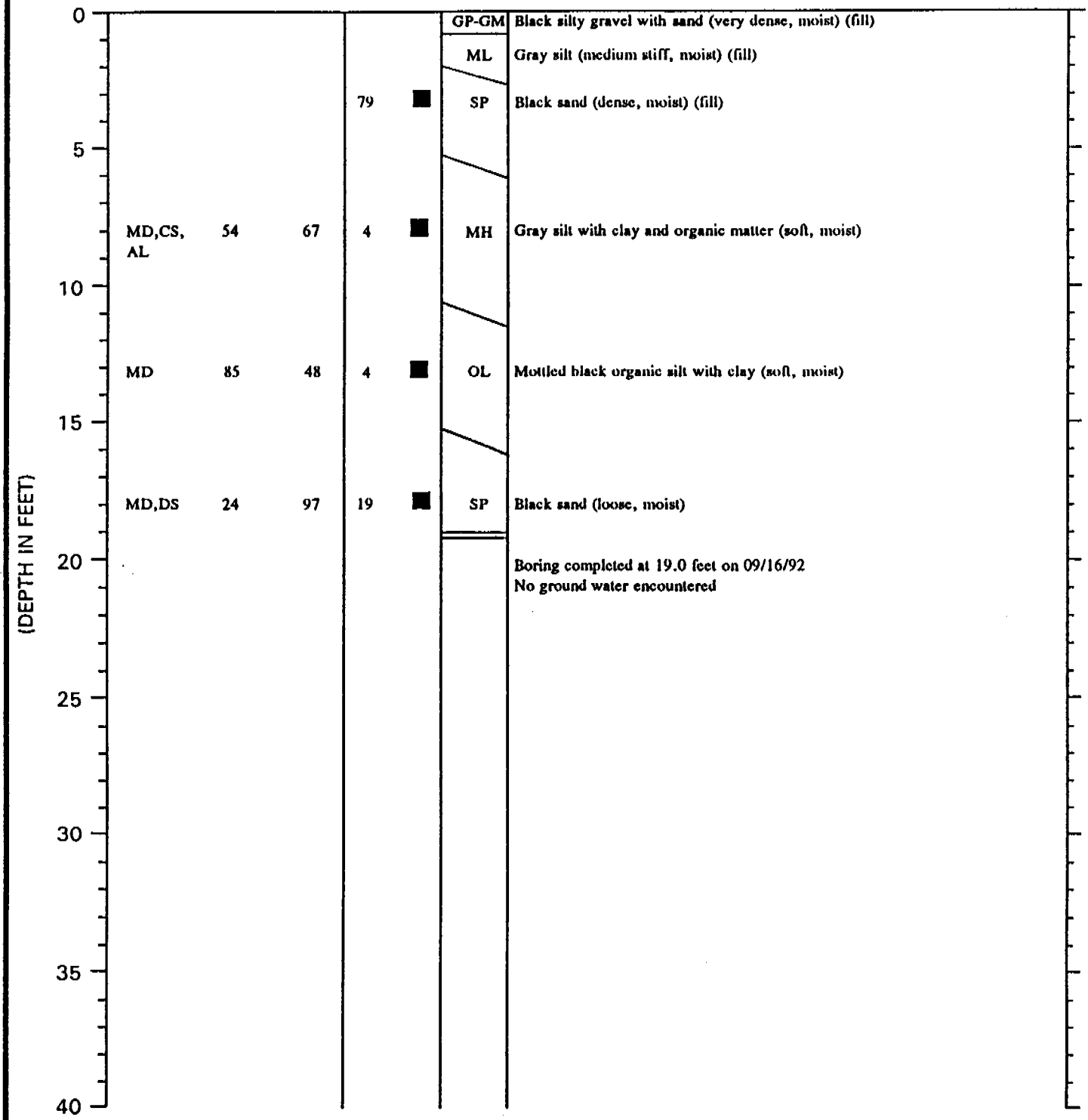
LOG OF BORING

FIGURE A-18

BORING NO. 4



See Figure A-4 for explanation of symbols

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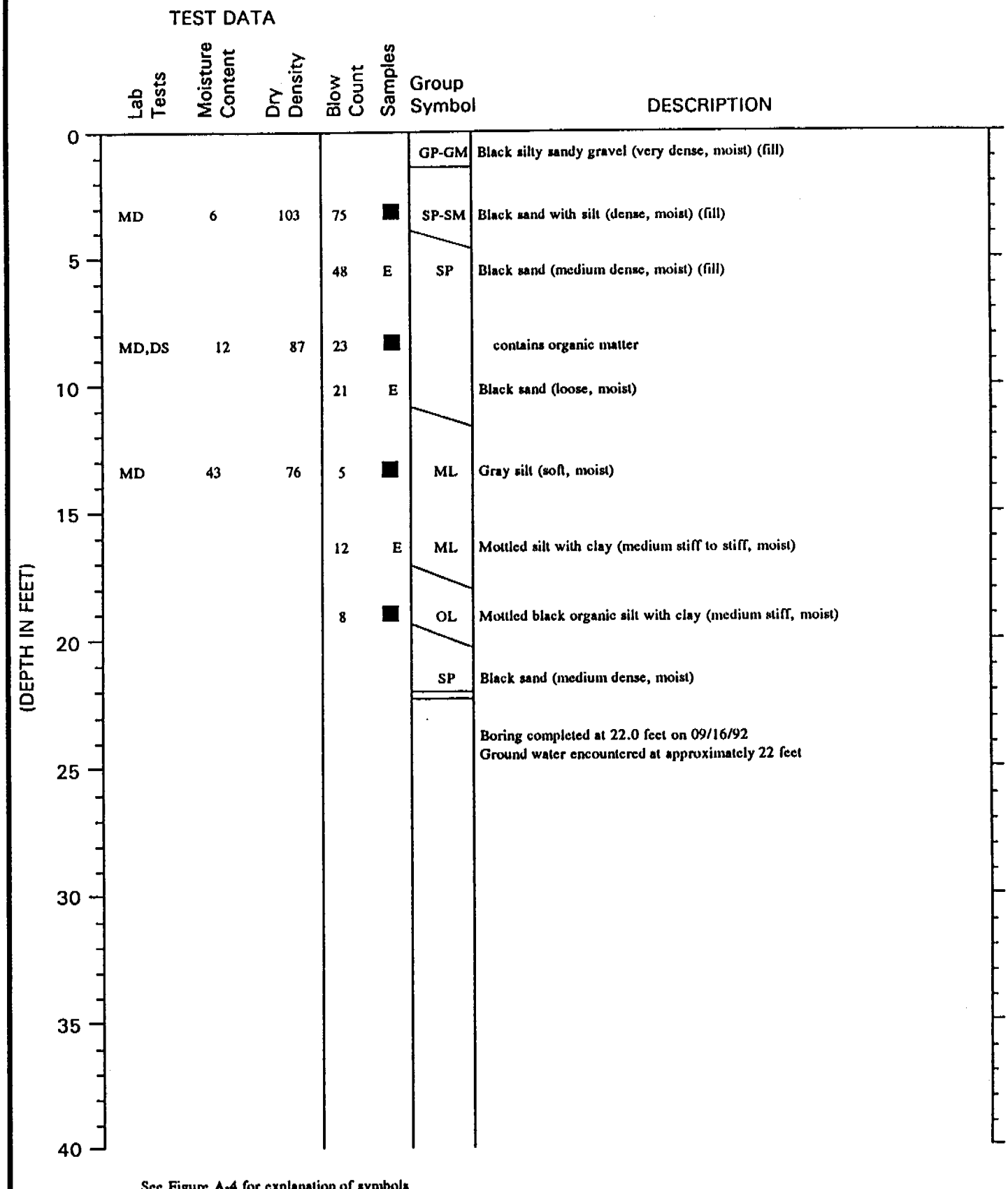
LOG OF BORING

FIGURE A-19

BORING NO. 5



See Figure A-4 for explanation of symbols

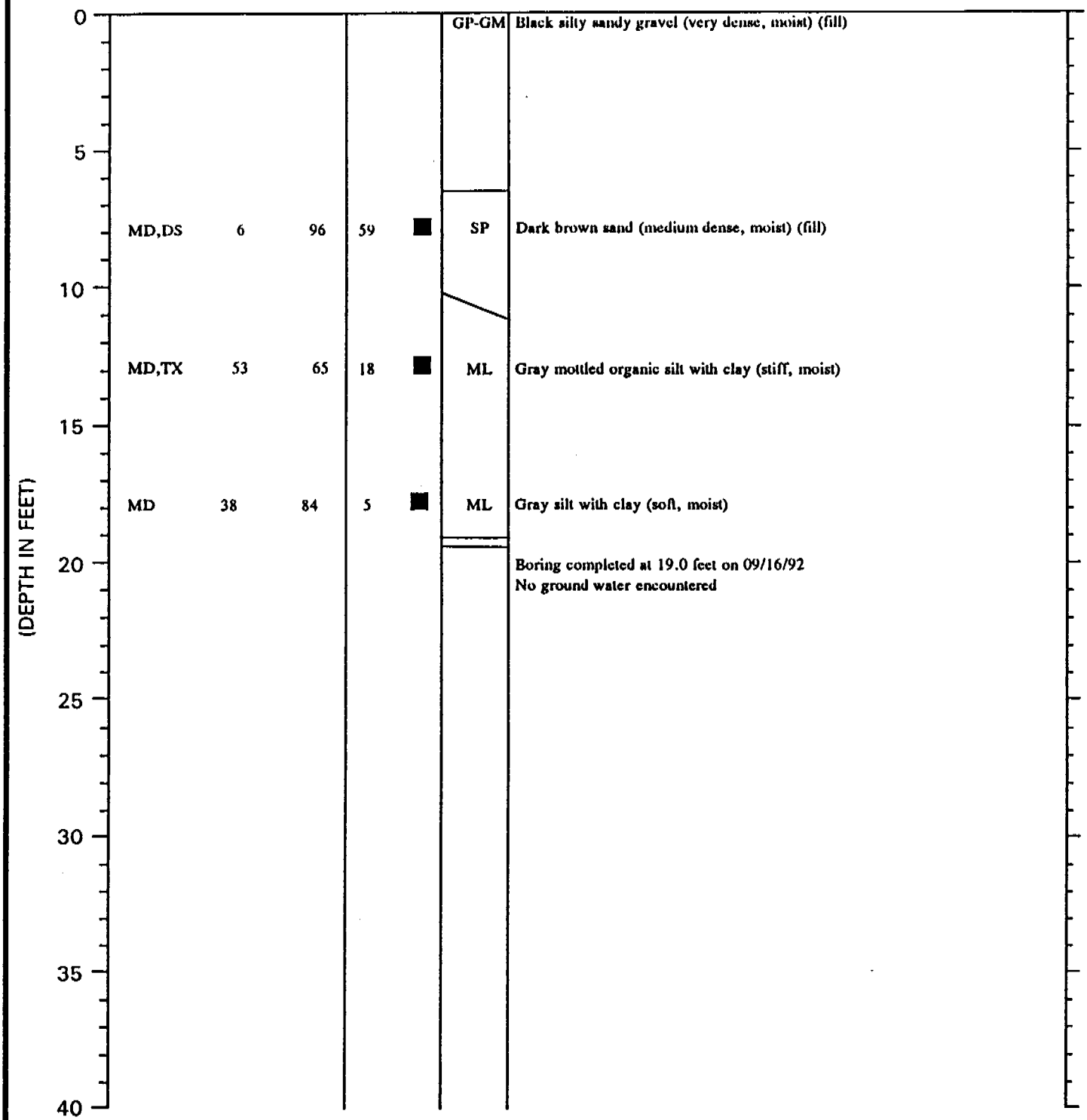
0454-015-T03 SMA:DB 10/08/92

Geo Engineers

LOG OF BORING

FIGURE A-20

BORING NO. 6



See Figure A-4 for explanation of symbols

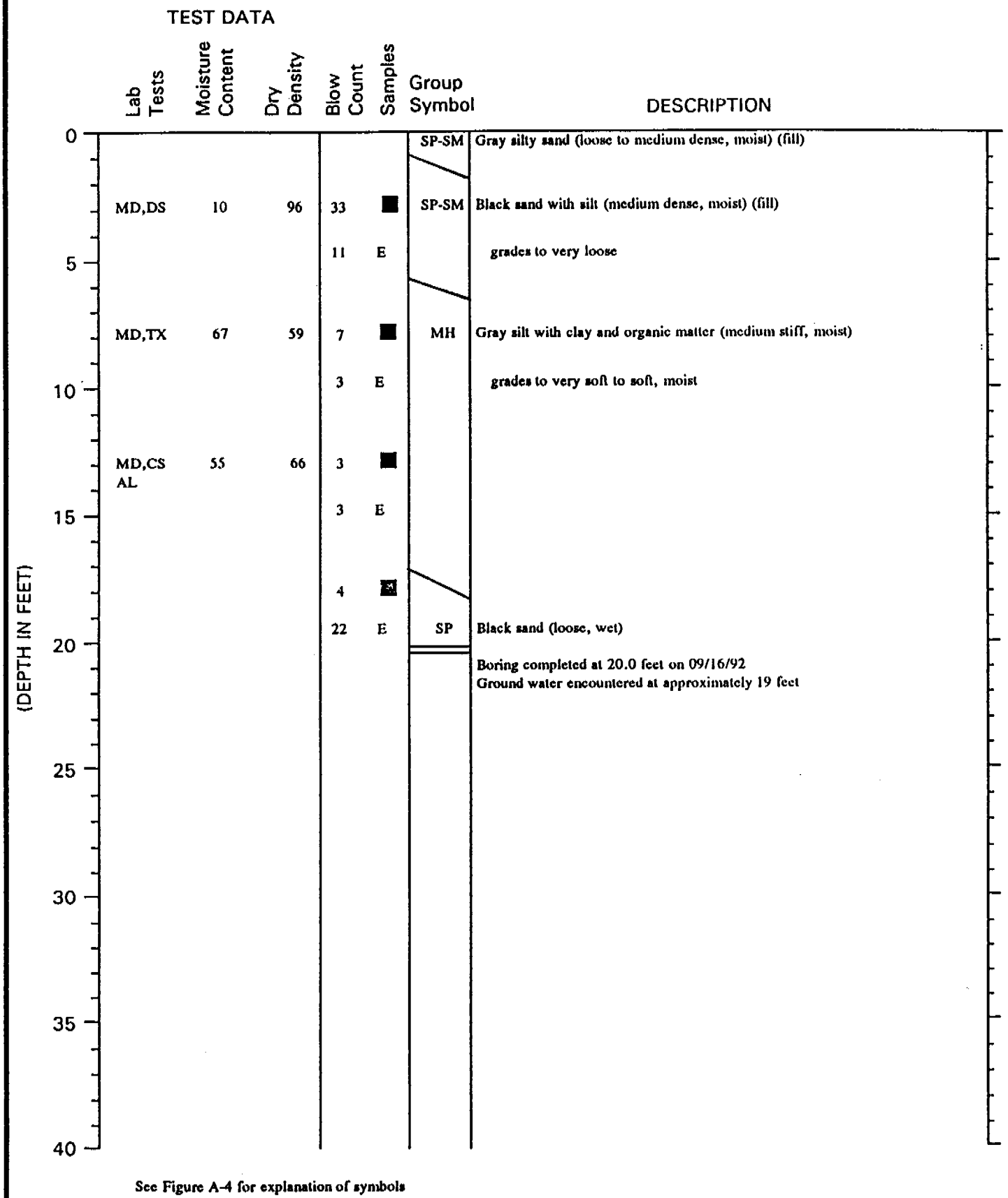
0454-015-T03 SMA:DB 10/08/92

GeoEngineers

LOG OF BORING

FIGURE A-21

BORING NO. 7



See Figure A-4 for explanation of symbols

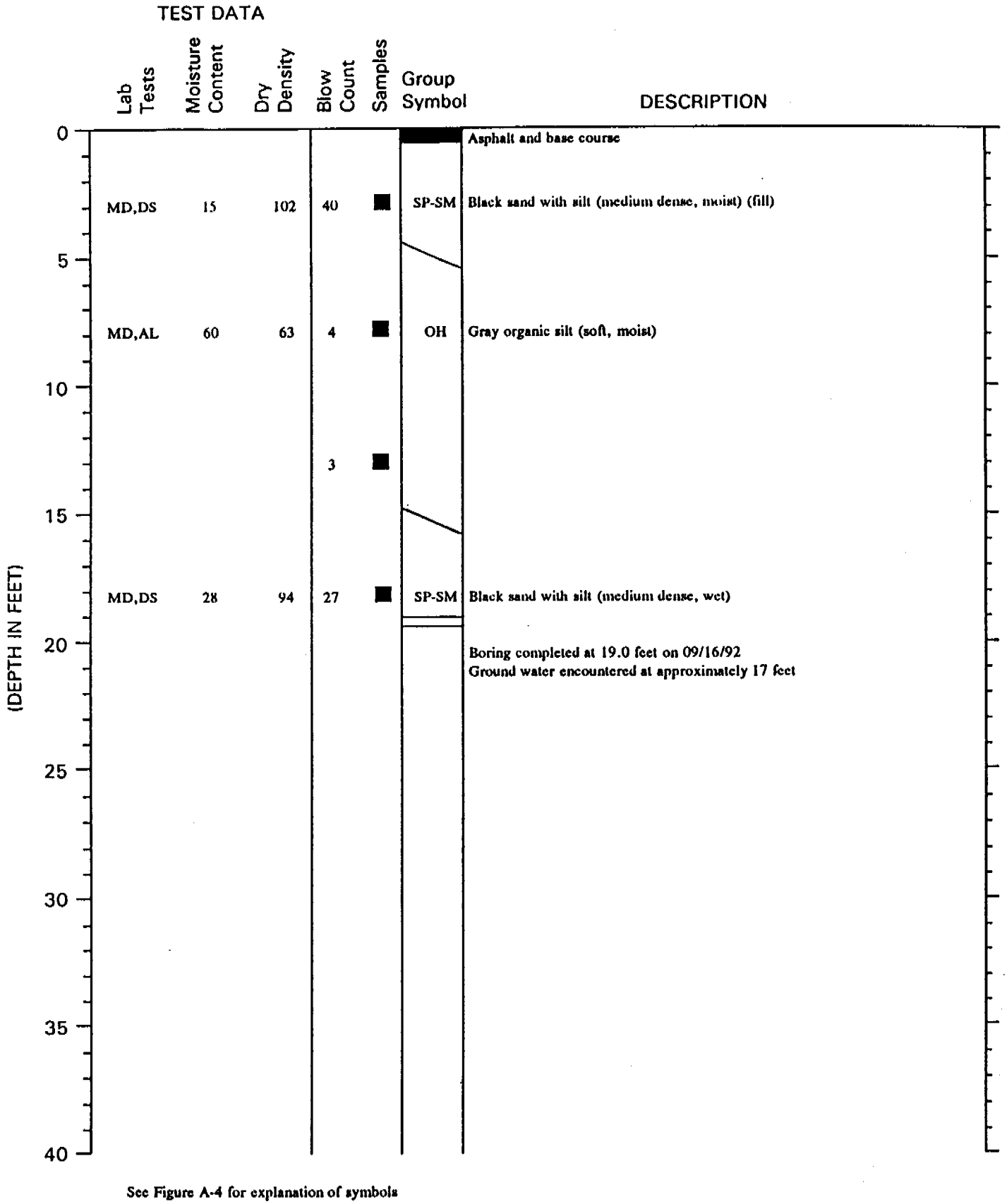
0454-015-T03 SMA:DB 10/08/92

GeoEngineers

LOG OF BORING

FIGURE A-22

BORING NO. 8



See Figure A-4 for explanation of symbols

0454-015-T03 SMA:DB 10/08/92

GeoEngineers

LOG OF BORING

FIGURE A-23

BINDING EDGE

PORT OF TACOMA

WUT TRUCK QUEUE
PROJECT NO. 091237
CONTRACT NO. 069475

PORT COMMISSIONERS:

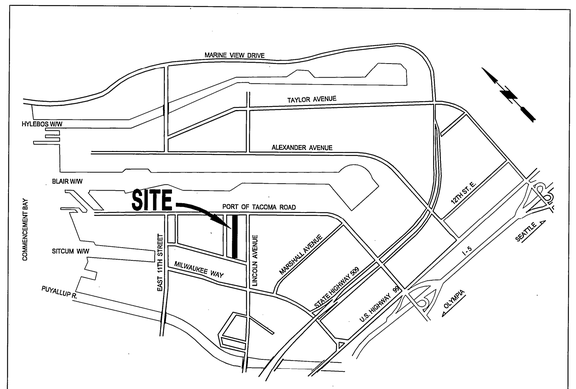
CONSTANCE T. BACON
DON MEYER
DONALD C. JOHNSON
RICHARD P. MARZANO
CLARE PETRICH

PORT STAFF:

JOHN WOLFE
Chief Executive Director

SUE MAUERMANN
Director of Facilities Development

DAKOTA CHAMBERLAIN
Director of Engineering



CONSULTANT:
Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Land Surveyors
Neighbors

AHBL
TACOMA · SEATTLE
2215 North 30th Street, Suite 300, Tacoma, WA 98403
253.383.2422 TEL
1200 Sixth Avenue, Suite 1620, Seattle, WA 98101
206.267.2425 TEL

SHEET INDEX

ADVERTISEMENT AFFIDAVIT

THESE DRAWINGS ARE APPROVED FOR ADVERTISEMENT TO BID.

4/30/2012
DAKOTA CHAMBERLAIN - Port of Tacoma Director of Engineering

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PORT OF TACOMA FILE: Q:\2011\211522\10_CIV\CAD\211522-G1.0

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STATE OF WASHINGTON · P. SCOTT BICKEL · 35888 · REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/30/13

APPROVED:

	CHECKED BY	DATE
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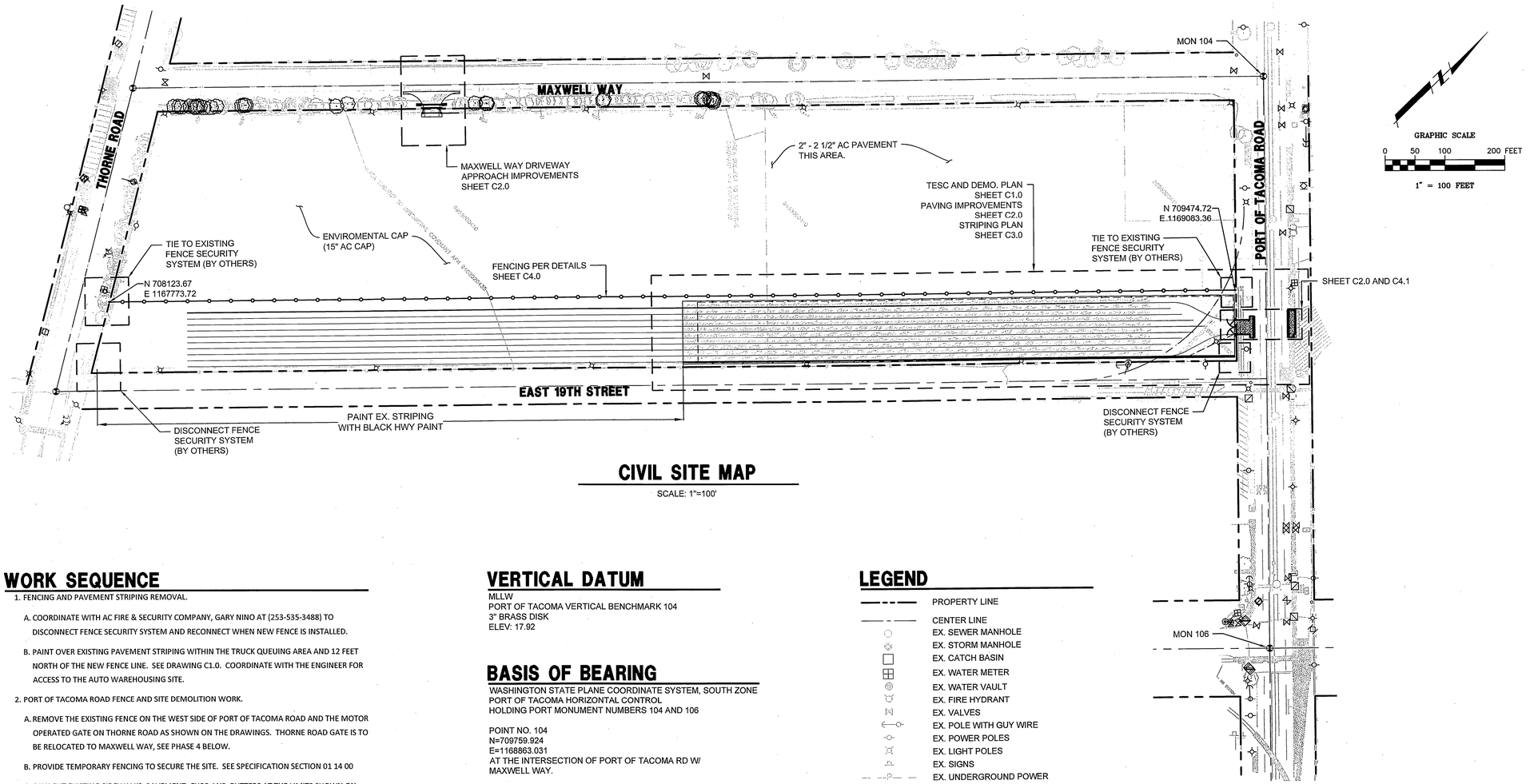
DIRECTOR ENG. DATE	PROJ. ENGR	DATE
PRINTED BY: skaul May 01, 2012		
PORT ADDRESS: ONE SITCUM PLAZA		
TACOMA, WA 98401-1837		

WUT TRUCK QUEUE
COVER SHEET

6497
G1.0
SH # 1 OF # 12

CONT/CONS:	069475	SECTION: 3E	TOWNSHIP: 34/35	RANGE: 21N
M. ID:	091237	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	100%	PARCEL:	DRAWING SCALE: AS NOTED	

BINDING EDGE



CIVIL SITE MAP

SCALE: 1"=100'

GRAPHIC SCALE
0 50 100 200 FEET
1" = 100 FEET

WORK SEQUENCE

1. FENCING AND PAVEMENT STRIPING REMOVAL.

   A. COORDINATE WITH AC FIRE & SECURITY COMPANY, GARY NINO AT (253-535-3488) TO DISCONNECT FENCE SECURITY SYSTEM AND RECONNECT WHEN NEW FENCE IS INSTALLED.

   B. PAINT OVER EXISTING PAVEMENT STRIPING WITHIN THE TRUCK QUEUING AREA AND 12 FEET NORTH OF THE NEW FENCE LINE. SEE DRAWING C1.0. COORDINATE WITH THE ENGINEER FOR ACCESS TO THE AUTO WAREHOUSING SITE.

2. PORT OF TACOMA ROAD FENCE AND SITE DEMOLITION WORK.

   A. REMOVE THE EXISTING FENCE ON THE WEST SIDE OF PORT OF TACOMA ROAD AND THE MOTOR OPERATED GATE ON THORNE ROAD AS SHOWN ON THE DRAWINGS. THORNE ROAD GATE IS TO BE RELOCATED TO MAXWELL WAY, SEE PHASE 4 BELOW.

   B. PROVIDE TEMPORARY FENCING TO SECURE THE SITE. SEE SPECIFICATION SECTION 01 14 00

   C. SAW CUT EXISTING SIDEWALKS, PAVEMENT, CURB AND GUTTERS AT THE LIMITS SHOWN ON THE DRAWINGS.

   D. COORDINATE WITH ENGINEER TO SCHEDULE DEMOLITION ACTIVITIES AT WUT EXISTING GATE.

3. PORT OF TACOMA AND THORNE ROAD DRIVEWAY AND GATE INSTALLATIONS.

   A. INSTALL DRIVEWAYS ON THE EAST AND WEST SIDE OF PORT OF TACOMA ROAD.

   B. INSTALL NEW GATES AT PORT OF TACOMA ROAD AND THORNE ROAD.

   C. PAVE TRUCK QUEUING AREA AND STRIPE PAVEMENT AS NOTED ON THE DRAWINGS.

   D. LOCATE AND INSTALL ROAD SIGNS. COORDINATE WITH ENGINEER PRIOR TO PLACEMENT OF SIGNS.

   E. COORDINATE WITH ENGINEER TO SCHEDULE WORK ACTIVITIES AT WUT EXISTING GATE.

4. MAXWELL WAY SITE CLEARING AND NEW DRIVEWAY.

   A. COORDINATE WITH AC FIRE & SECURITY COMPANY, GARY NINO AT (253-535-3488) TO DISCONNECT FENCE SECURITY SYSTEM AND RECONNECT WHEN NEW GATE IS INSTALLED.

   B. CLEAR AND GRADE AREA AS NOTED ON THE DRAWINGS.

   C. INSTALL CULVERT AND ELECTRICAL CONDUIT PRIOR TO PAVING. ELECTRICAL CONDUIT CAN BE DIRECT BURIED IN RIGID CONDUIT AFTER SITE CLEARING IS COMPLETED.

   D. MAKE REPAIRS TO MAXWELL WAY AND PAVE AS NOTED ON THE DRAWINGS

   E. INSTALL GATE FROM THORNE ROAD AND TEST.

   F. COORDINATE WITH THE ENGINEER FOR ACCESS TO THE AUTO WAREHOUSING SITE.

VERTICAL DATUM

MLLW
PORT OF TACOMA VERTICAL BENCHMARK 104
3" BRASS DISK
ELEV: 17.92

BASIS OF BEARING

WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE
PORT OF TACOMA HORIZONTAL CONTROL
HOLDING PORT MONUMENT NUMBERS 104 AND 106

POINT NO. 104
N=709759.924
E=1168863.031
AT THE INTERSECTION OF PORT OF TACOMA RD W/ MAXWELL WAY.

POINT NO. 106
N=709095.317
E=1169548.713
AT THE INTERSECTION OF PORT OF TACOMA RD W LINCOLN AVE.

A LINE BETWEEN THE TWO FOUND MONUMENTS BEARS NORTH 45°53'39" WEST.

LEGEND

- PROPERTY LINE
- CENTER LINE
- EX. SEWER MANHOLE
- EX. STORM MANHOLE
- EX. CATCH BASIN
- EX. WATER METER
- EX. WATER VAULT
- EX. FIRE HYDRANT
- EX. VALVES
- EX. POLE WITH GUY WIRE
- EX. POWER POLES
- EX. LIGHT POLES
- EX. SIGNS
- EX. UNDERGROUND POWER
- EX. OVERHEAD POWER
- EX. FIBER OPTICS
- EX. STORM DRAIN
- EX. SEWER
- EX. GAS
- EX. TELEPHONE
- EX. WATER
- EX. OIL PIPELINES
- EX. MONUMENT
- EX. TREE
- EX. VEGETATION

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	CHECKED BY	DATE
DESIGN	SCOTT BICKEL	
DRAWN	PROJ. ENGR	DATE
CHECK	Tsnook May 03, 2012	

APPROVED:

DAKOTA CHAMBERLAIN
DIRECTOR ENG. DATE

PRINTED BY: tsnook May 03, 2012
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DRAWING SCALE: AS NOTED

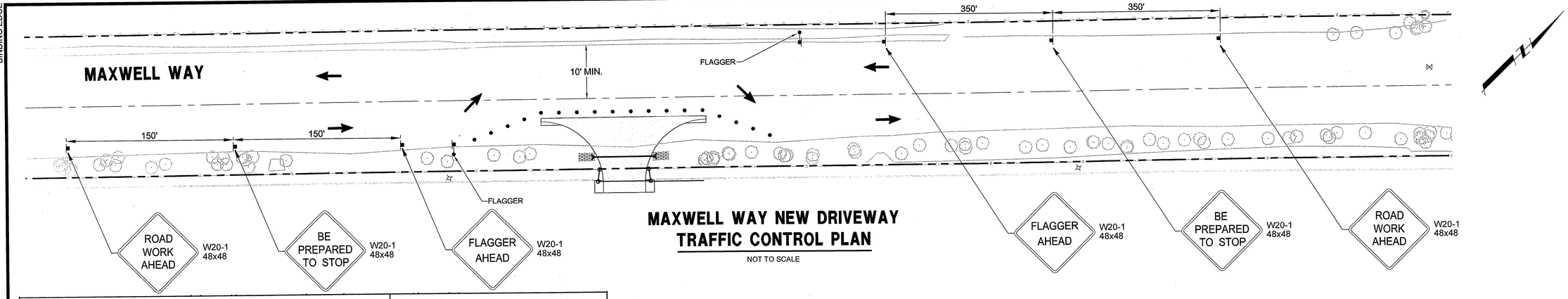
WUT TRUCK QUEUE
SITE MAP AND WORK SEQUENCE PLAN

SECTION:	3E	TOWNSHIP: 34/35	RANGE: 21N
DAT-HRZ:	WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PARCEL:			

CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

6497
G2.0
SH # 2 OF # 12

PORT OF TACOMA FILE: Q:\2011\211522\10_CIVICAD\211522-G2.0



MAXWELL WAY NEW DRIVEWAY TRAFFIC CONTROL PLAN

NOT TO SCALE

RIGHT LANE CLOSURE

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY:_____ DATE:_____

START TRAFFIC CONTROL SET UP DATE:_____ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE:_____ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:_____

MUST BE OUT OF THE ROAD BY DATE & TIME:_____

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

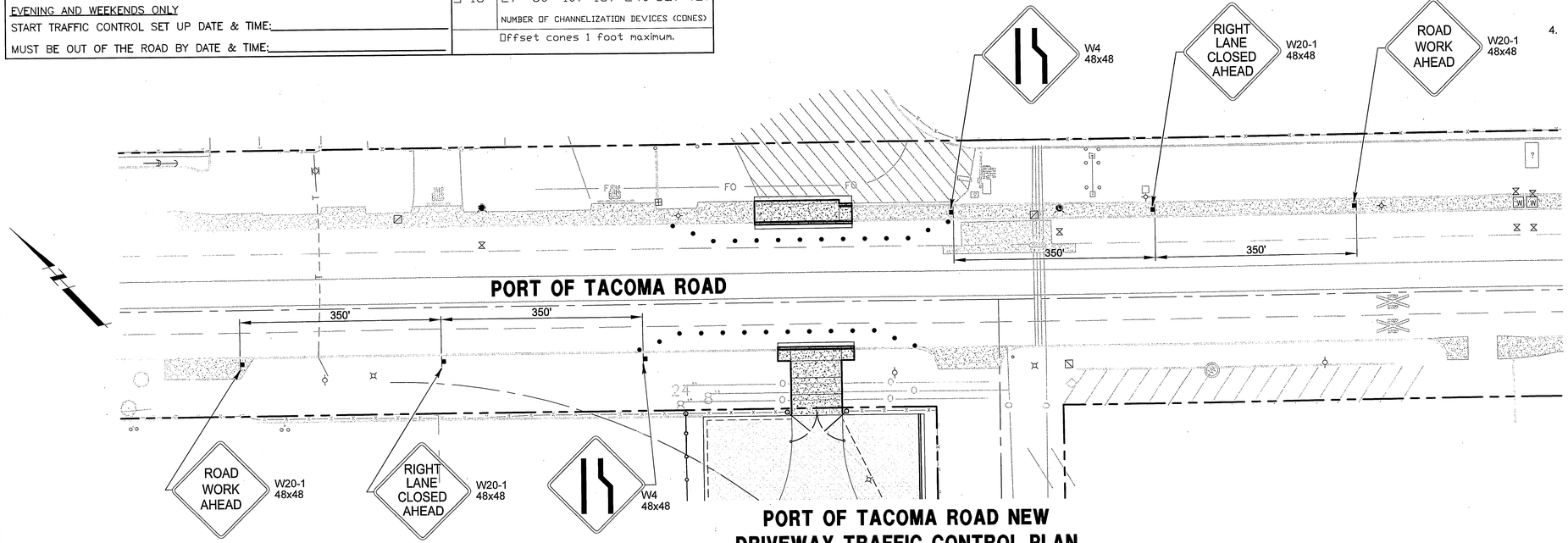
LANE WIDTH	MPH 10	15	20	25	30	35	40
8′	14	30	54	84	120	164	214
10′	17	38	67	105	150	204	267
12′	20	45	80	125	180	245	320
14′	24	53	94	146	210	286	374
16′	27	60	107	167	240	327	427

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

NOTES:

1. KEEP A COPY OF THE TRAFFIC CONTROL PLAN AT THE JOB SITE FOR THE DURATION OF CONSTRUCTION.
2. CONTRACTOR SHALL REFERENCE CITY OF TACOMA TRAFFIC CONTROL HANDBOOK AND PART SIX (6) OF THE MUTCD FOR SPECIFIC REQUIREMENTS AND GENERAL RULES NOT COVERED HEREIN.
3. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING, MANAGING AND REMOVING TRAFFIC CONTROL DEVICES FOR THIS WORK.
4. ALL SIGNS AND CONES SHALL BE REMOVED FROM THE RIGHT-OF-WAY WHEN TRAFFIC CONTROL IS NOT IN EFFECT.



PORT OF TACOMA ROAD NEW DRIVEWAY TRAFFIC CONTROL PLAN

NOT TO SCALE

SINGLE LANE NON-ARTERIAL WITH FLAGGER

☐ APPROVED BY:
☐ APPROVED WITH CONDITIONS BY:_____ DATE:_____

START TRAFFIC CONTROL SET UP DATE:_____ OFF PEAK 9:00 AM WEEKDAYS

MUST BE OUT OF THE ROAD BY DATE:_____ OFF PEAK 3:30 PM WEEKDAYS

EVENING AND WEEKENDS ONLY

START TRAFFIC CONTROL SET UP DATE & TIME:_____

MUST BE OUT OF THE ROAD BY DATE & TIME:_____

MERGING TAPER LENGTHS FOR CONE PATTERN
(All minimums)

LANE WIDTH	MPH 10	15	20	25	30	35	40
8′	14	30	54	84	120	164	214
10′	17	38	67	105	150	204	267
12′	20	45	80	125	180	245	320
14′	24	53	94	146	210	286	374
16′	27	60	107	167	240	327	427

NUMBER OF CHANNELIZATION DEVICES (CONES)

Offset cones 1 foot maximum.

CITY PERMIT NUMBER:

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PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-6841

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APPROVED:		
	DAKOTA CHAMBERLAIN	DATE
	DIRECTOR ENG.	

SECTION:	3E	TOWNSHIP: 34/35	RANGE: 21N
DAT-HRZ:	WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PARCEL:		DRAWING SCALE: AS NOTED	

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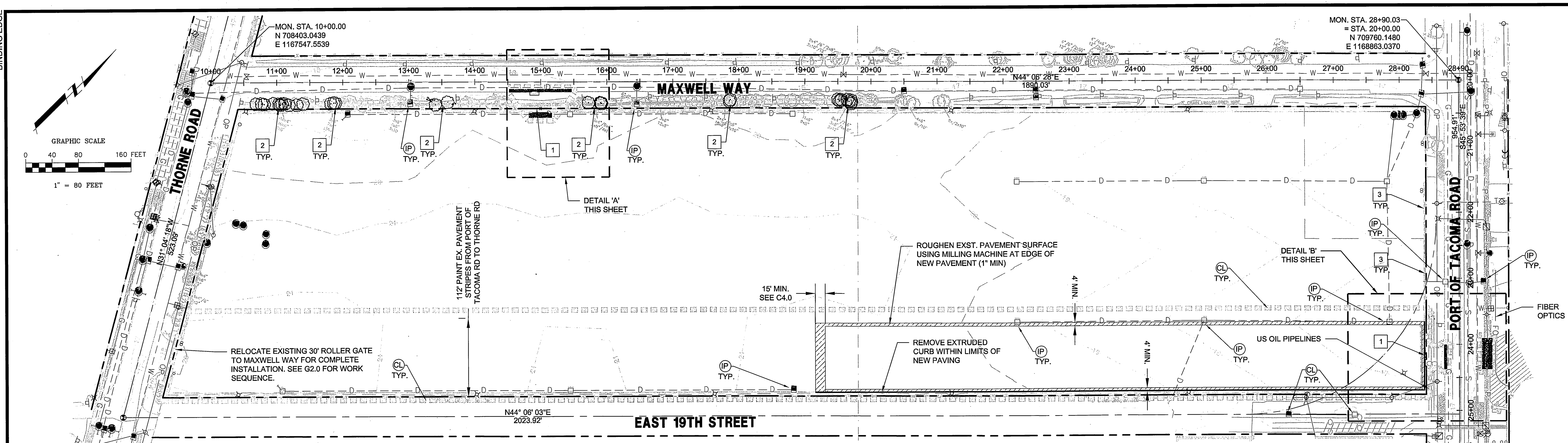
TACOMA, WA 98401-1837

WUT TRUCK QUEUE TRAFFIC CONTROL PLAN

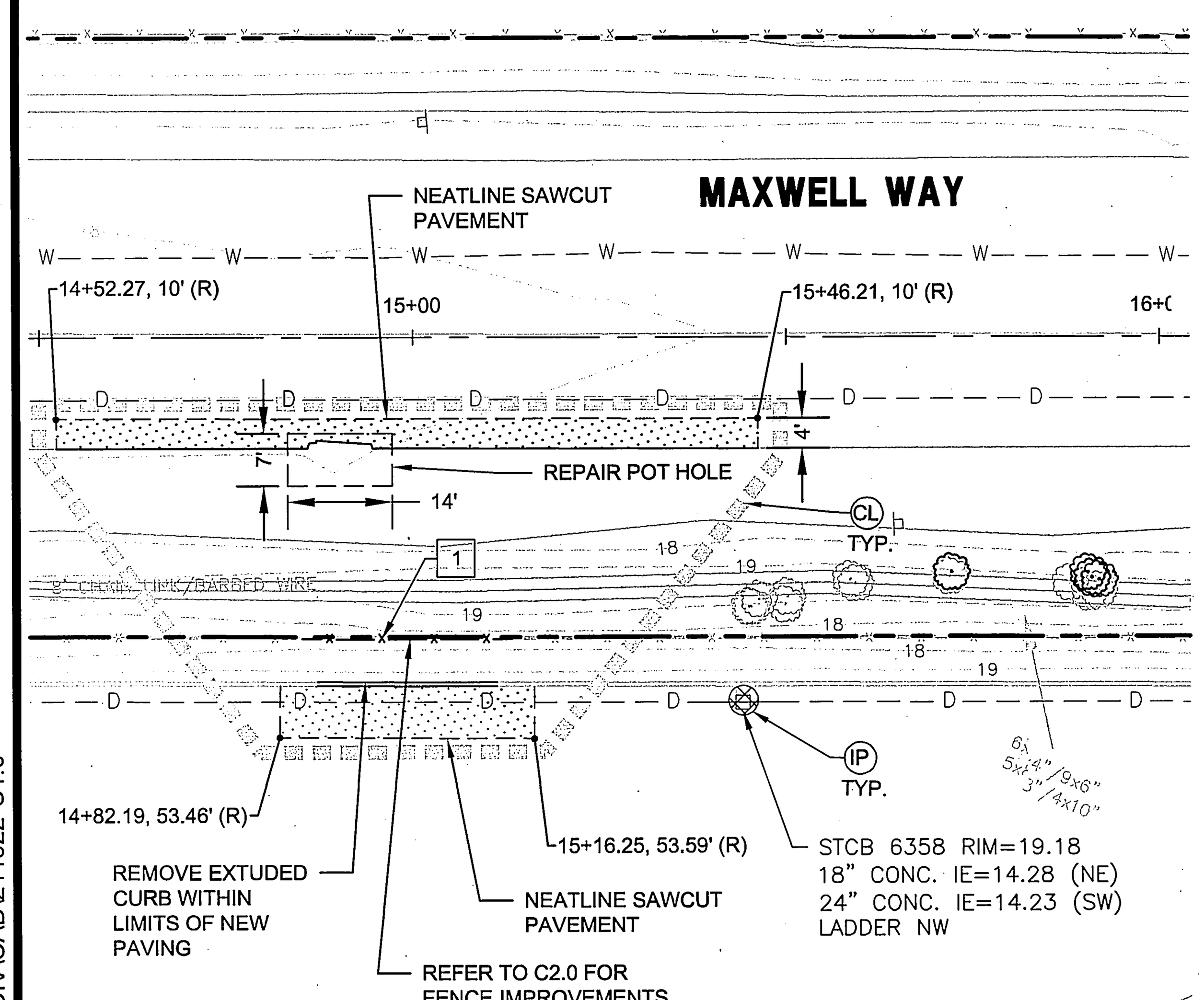
6497 **G3.0** SH # 3 OF # 12

CONT/CONS: 0694/75
M. ID: 091237
PHASE: 100%

WUT TRUCK QUEUE TESC AND DEMOLITION PLAN



SCALE: 1"=80'

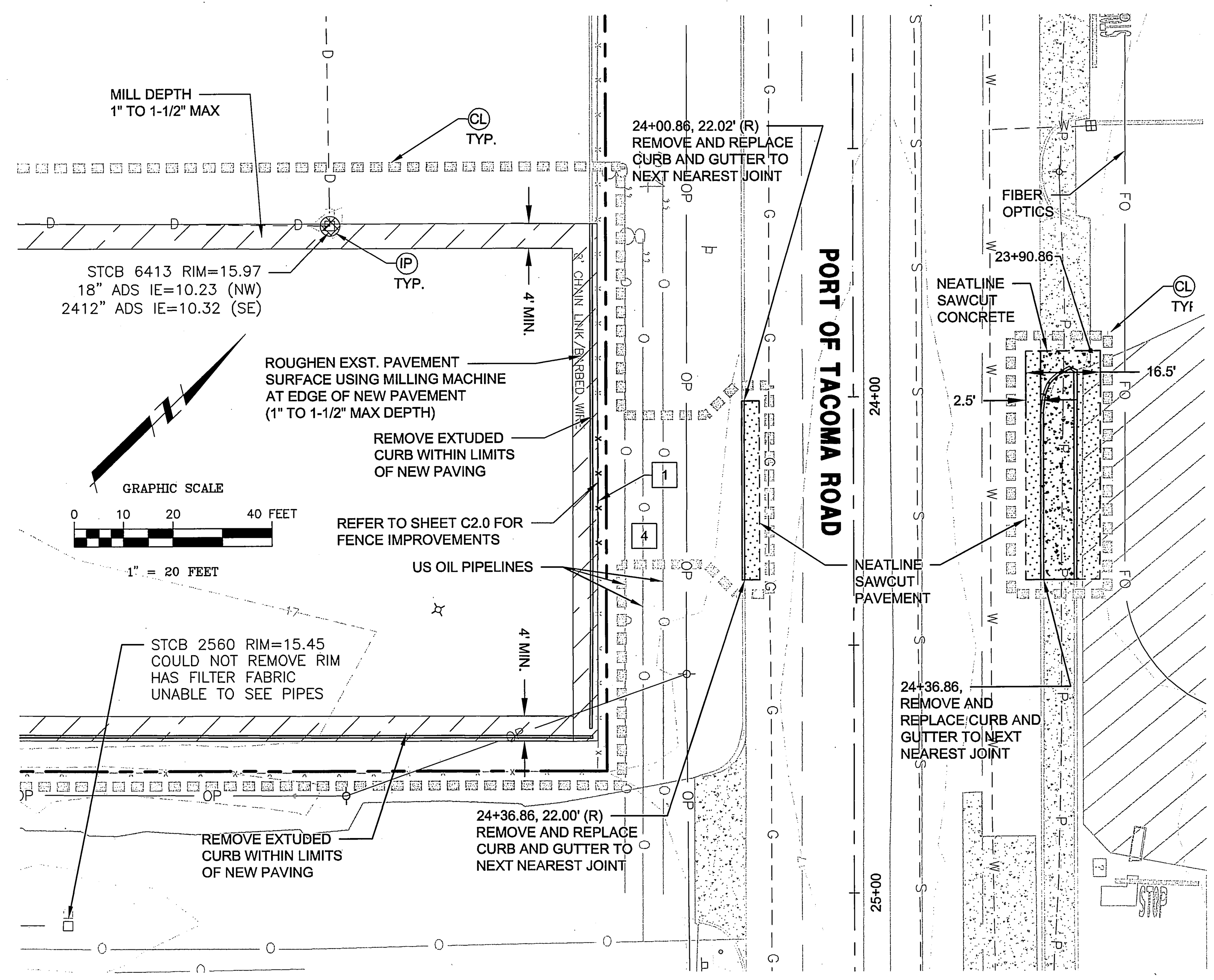


NOTE:

1. POT HOLE REPAIR. CUT EDGES SQUARE AND FULL DEPTH OF PAVEMENT. RECOMPACT BASE AND PAVE.
2. SEAL ALL JOINTS.

DETAIL "A"

SCALE: 1"=20'



DETAIL "B"

SCALE: 1"=20'

TESC LEGEND

- CLEARING LIMITS
- INLET PROTECTION

DEMOLITION LEGEND

- CONCRETE DEMO
- ASPHALT DEMO
- SAWCUT LINE

KEYNOTE

1. REFER TO PHASING PLAN G2.0
2. REMOVE TREES LESS THAN 6-INCHES (APPROXIMATELY 30 TREES)
3. REMOVE VEGETATION BETWEEN EXISTING FENCE AND CURB LINE. INSTALL CURB CUTS (24" WIDE) LOCATIONS TO BE FIELD LOCATED BY ENGINEER.
4. LOCATE US OIL PIPELINE USING HYDRO EXCAVATOR PRIOR TO EXCAVATING. COORDINATE WITH ENGINEER. US OIL REPRESENTATIVE SHALL BE ON-SITE FOR LOCATE AND EXCAVATION.

GENERAL NOTES

1. CLEARING - IT IS THE INTENT OF THE WORK UNDER THIS CONTRACT TO CONDUCT ALL CLEARING NECESSARY TO BE ABLE TO COMPLETE ALL WORK OF THIS PROJECT.
2. CONTRACTOR TO PROTECT ALL EXISTING ONSITE UTILITIES, UNLESS OTHERWISE SPECIFICALLY INDICATED.
3. PRIOR TO CONSTRUCTION, CONTRACTOR TO ENSURE ALL PREVENTATIVE TESC MEASURES ARE IN PLACE AND MAINTAINED TO PREVENT SURFACE RUNOFF FROM CONTAMINATING ADJACENT PROPERTIES.
4. CONTRACTOR TO REMOVE AND HAUL DEMOLISHED MATERIALS TO AN APPROVED DISPOSAL SITE.

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WUT TRUCK QUEUE
TESC AND DEMOLITION PLAN

SECTION: 3E	TOWNSHIP: 34/35	RANGE: 21N
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PARCEL:	DRAWING SCALE: AS NOTED	

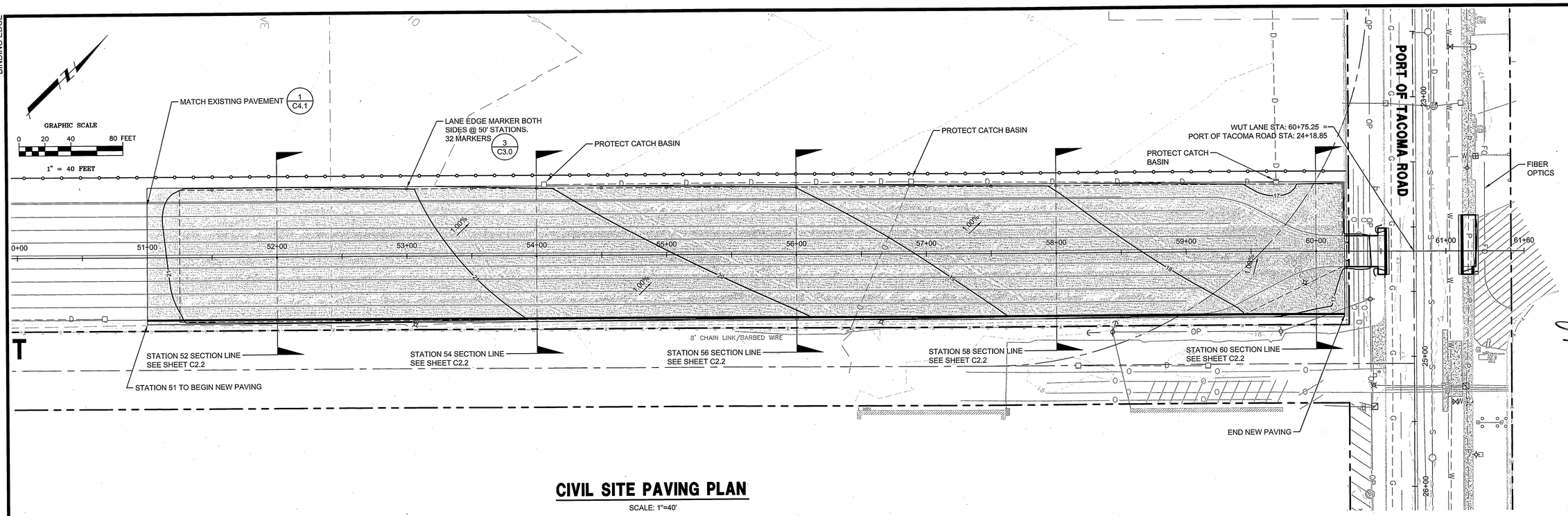
6497
C1.0
SH # 4 OF # 12

CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

BINDING EDGE

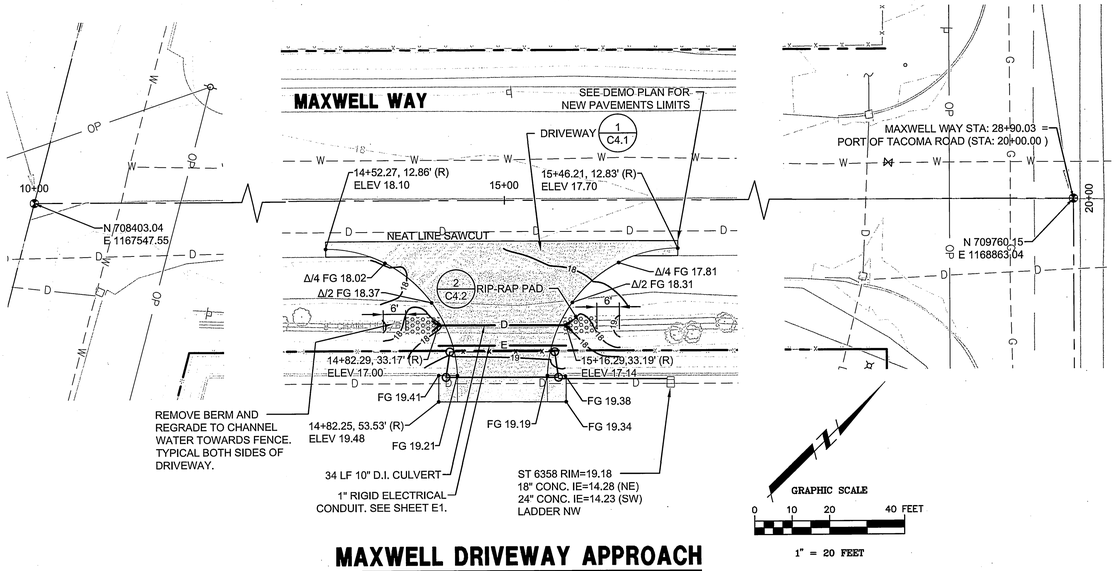
PORT OF TACOMA FILE: Q:\2011\211522\10_CIV\CAD\211522-C1.0

BINDING EDGE



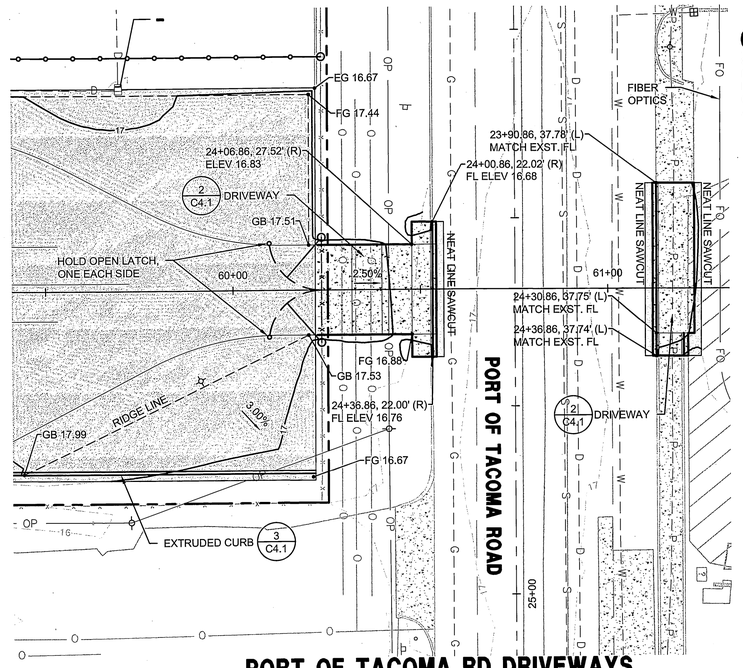
CIVIL SITE PAVING PLAN

SCALE: 1"=40'



MAXWELL DRIVEWAY APPROACH

SCALE: 1"=20'



PORT OF TACOMA RD DRIVEWAYS

SCALE: 1"=20'

GENERAL NOTE

CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED GRADES BEFORE COMMENCING WORK. CONTACT ENGINEER IF GRADES ARE BELIEVED TO BE IN ERROR.

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TACOMA, WA 98401-1837	
DRAWING SCALE: AS NOTED	

WUT TRUCK QUEUE SITE PLAN

SECTION:	3E	TOWNSHIP: 34/35	RANGE: 21N
DAT-HRZ:	WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PARCEL:			

6497
C2.0
SH # 5 OF # 12

CONT/CONS:	069475
M. ID:	091237
PHASE:	100%

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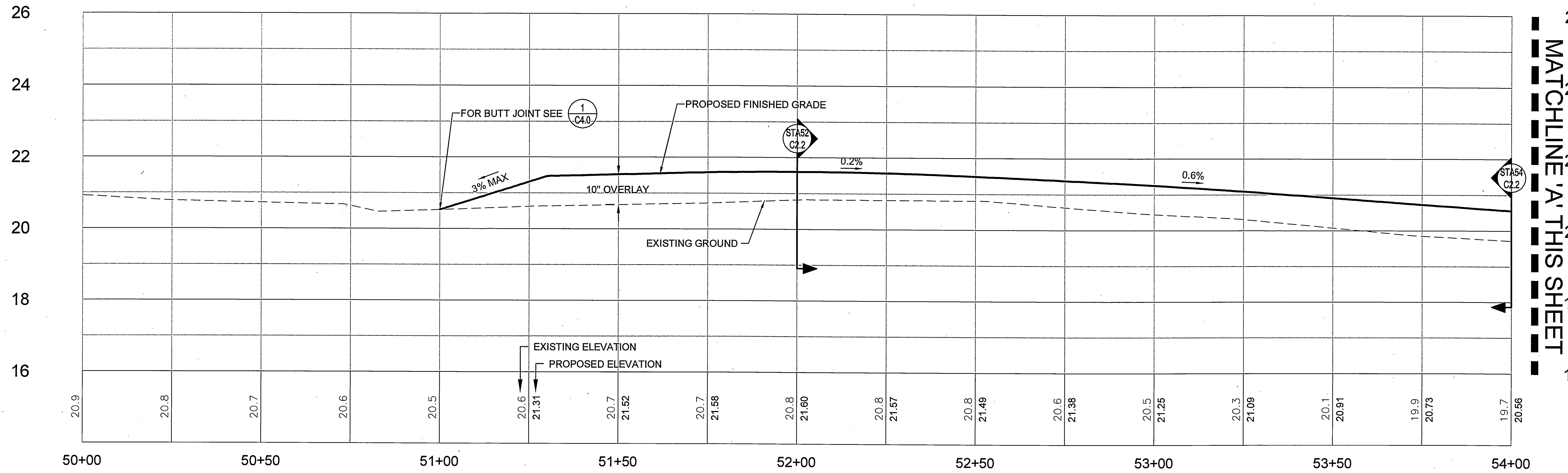

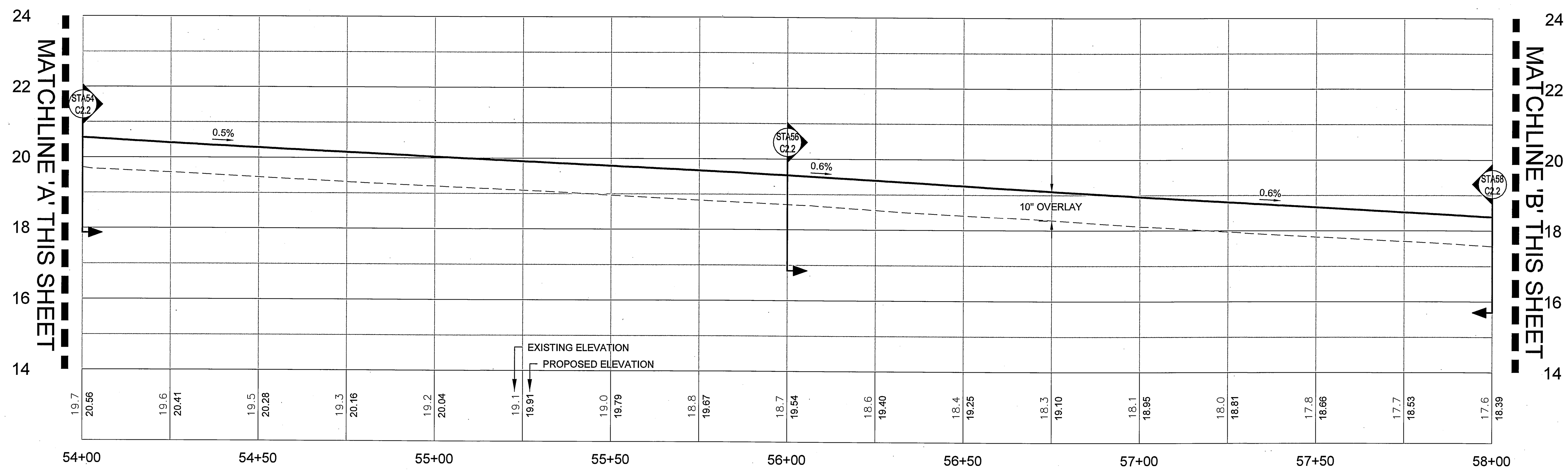

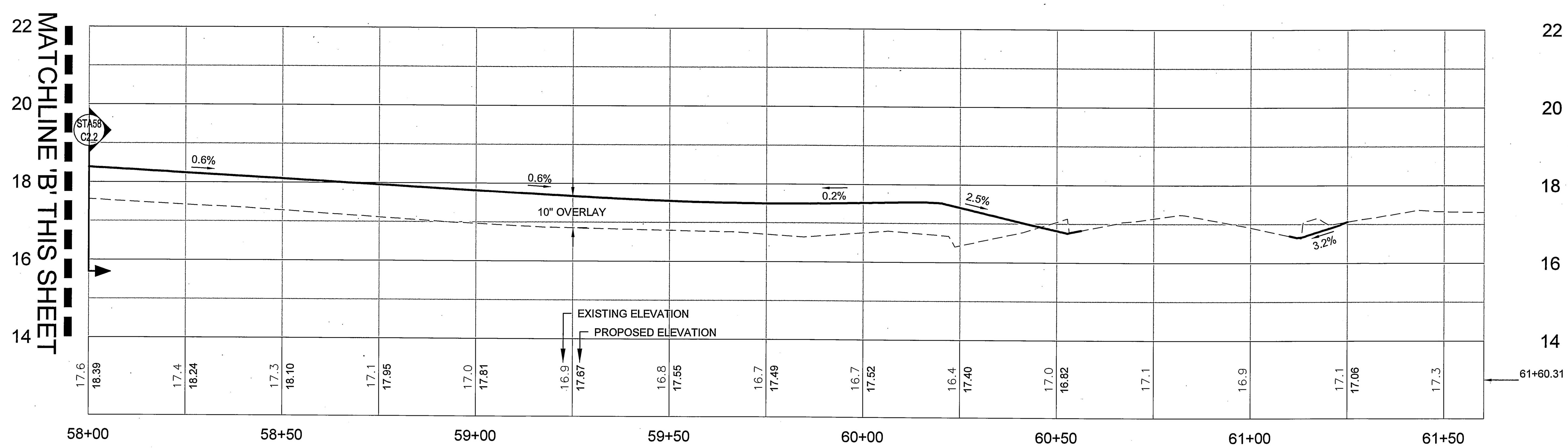

TRUCK QUEUE PROFILE
SCALE: HORIZONTAL = 20'
VERTICAL = 2'

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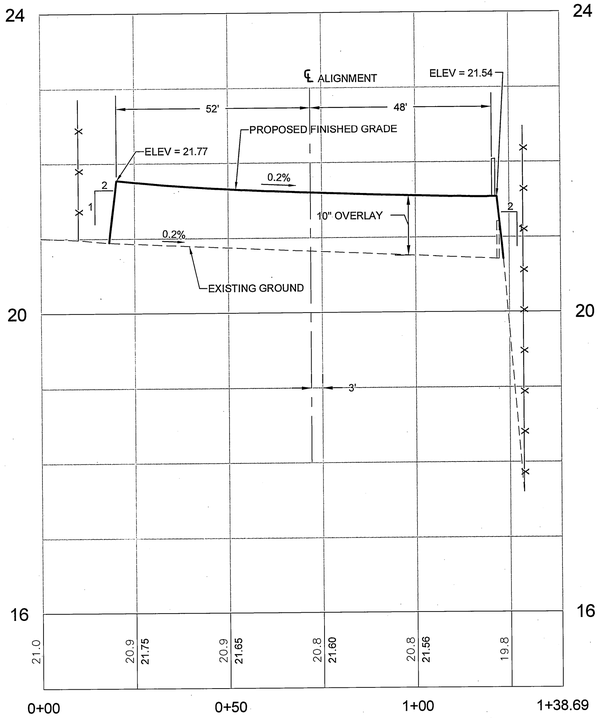
WUT TRUCK QUEUE
WUT CENTERLINE PROFILE

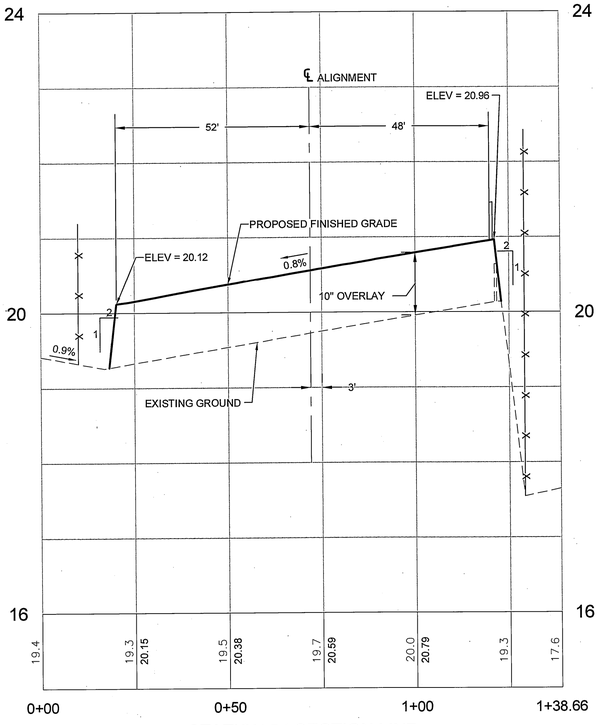
SECTION: 3E | TOWNSHIP: 34/35 | RANGE: 21N
DAT-HRZ: WA83-SF | VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: | DRAWING SCALE: AS NOTED

6497
C2.1
SH # 8 OF # 12
CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

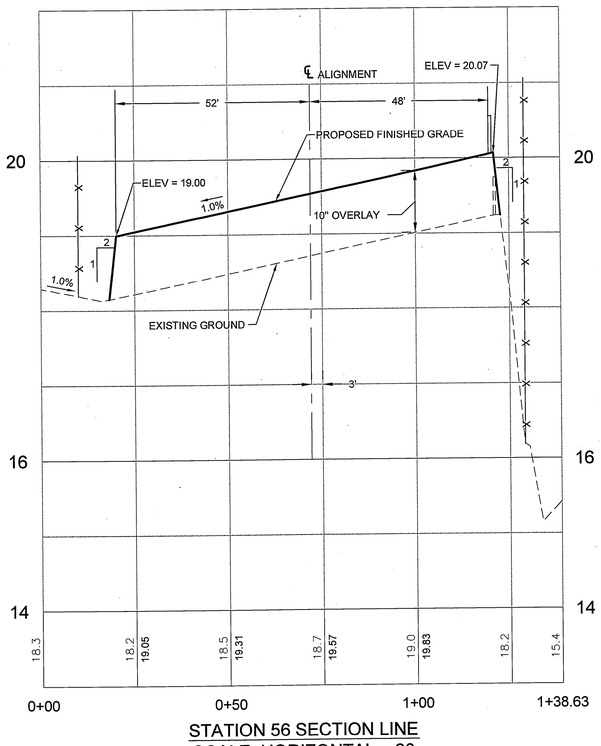
BINDING EDGE



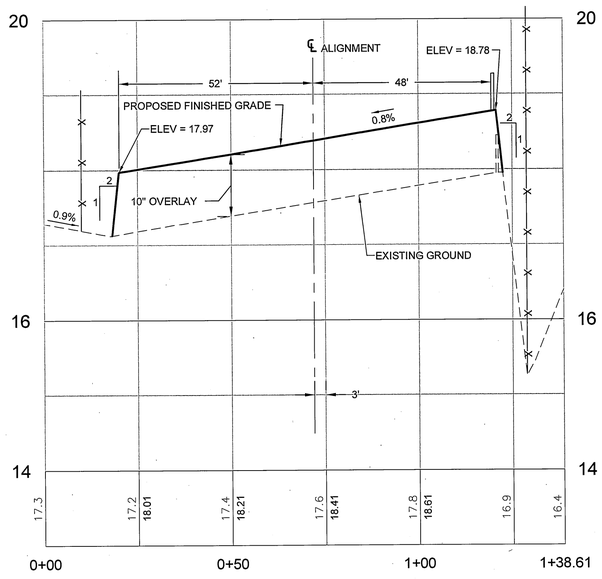
STATION 52 SECTION LINE
SCALE: HORIZONTAL = 20
VERTICAL = 1'



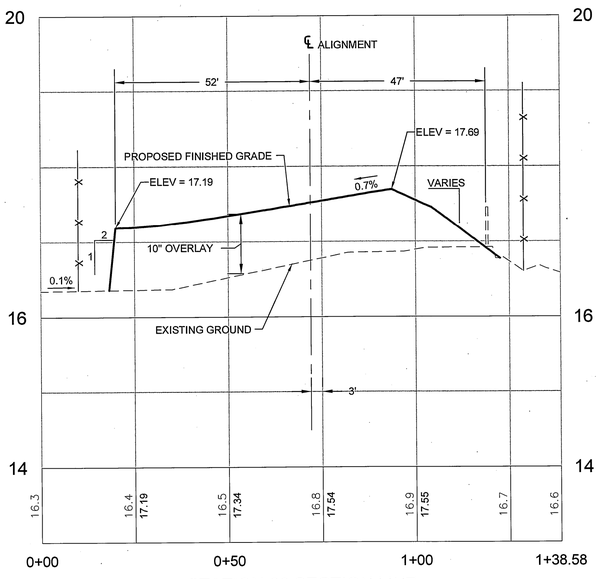
STATION 54 SECTION LINE
SCALE: HORIZONTAL = 20
VERTICAL = 1'



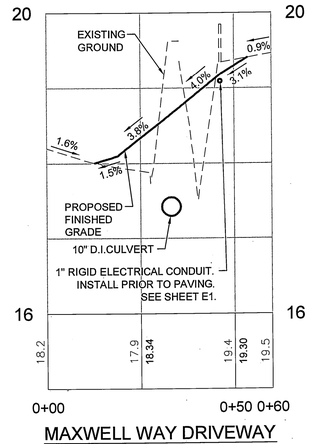
STATION 56 SECTION LINE
SCALE: HORIZONTAL = 20
VERTICAL = 1'



STATION 58 SECTION LINE
SCALE: HORIZONTAL = 20
VERTICAL = 1'



STATION 60 SECTION LINE
SCALE: HORIZONTAL = 20
VERTICAL = 1'



MAXWELL WAY DRIVEWAY
SCALE: HORIZONTAL = 20
VERTICAL = 1'

ISSUED FOR BID

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PORT OF TACOMA FILE: Q:\2011\1211522\10_CIVCAD\211522-C2.2

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

PORT OF TACOMA U.S.A.

SCOTT BICKEL — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — 28888
EXPIRES 12/29/13

APPROVED:

DAKOTA CHAMBERLAIN — CHECKED BY — DATE
DIRECTOR ENG. — DATE
PRINTED BY: skaul May 02, 2012
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837
DRAWING SCALE: AS NOTED
PARCEL:

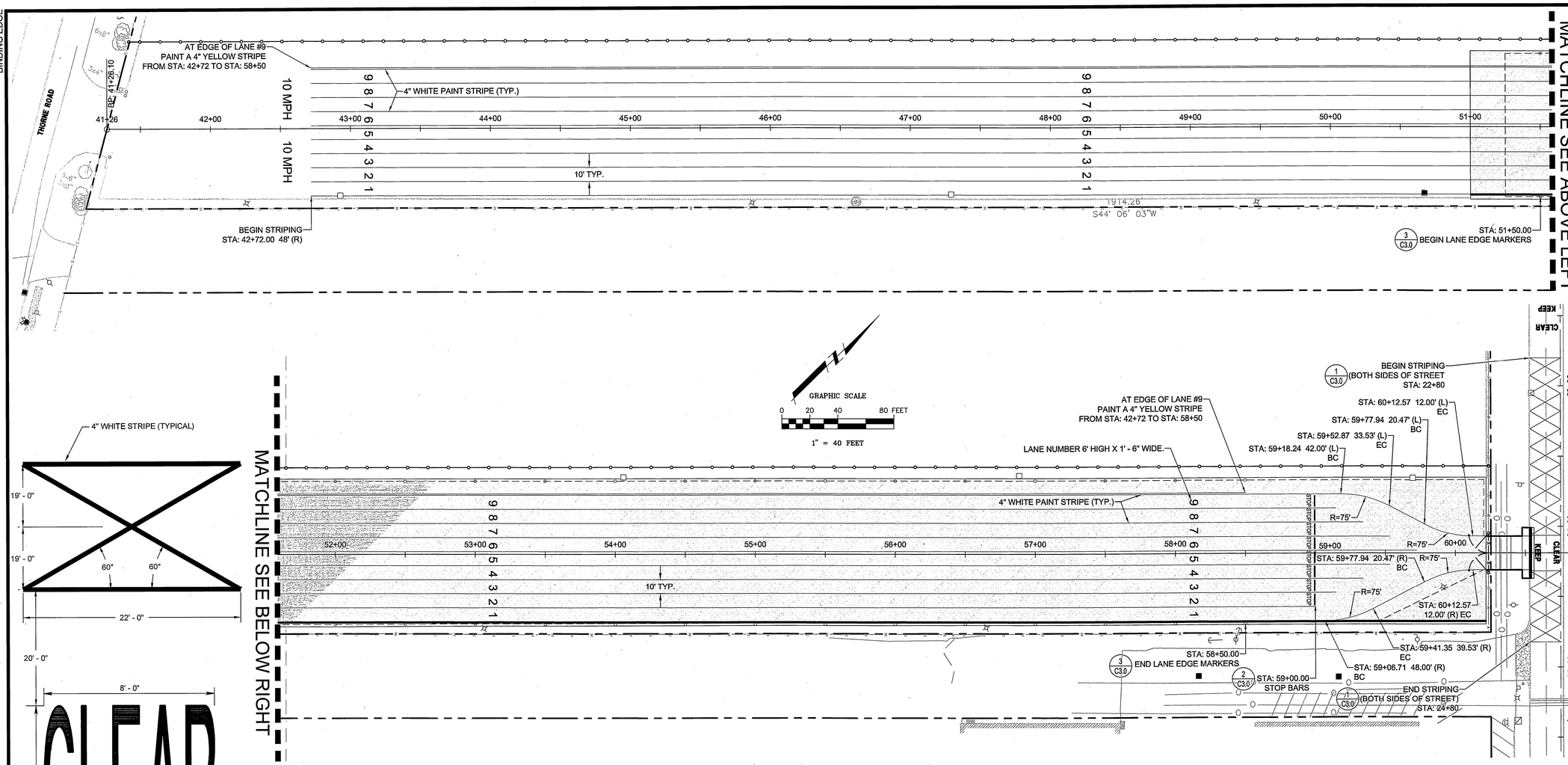
WUT TRUCK QUEUE
CROSS SECTIONS

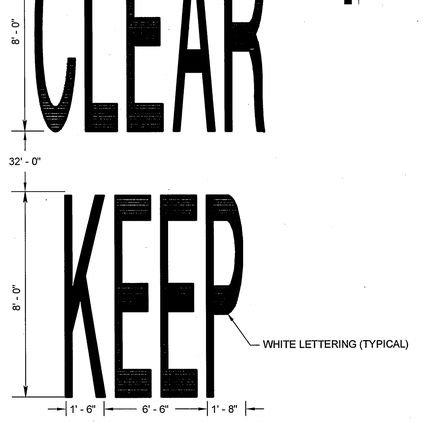
SECTION: 3E | TOWNSHIP: 34/35 | RANGE: 21N
VERT: MLLW 19.39' @ Tide 22 1933
DAT-HRZ: WA83-SF

6497
C2.2
SH # 7 OF # 12

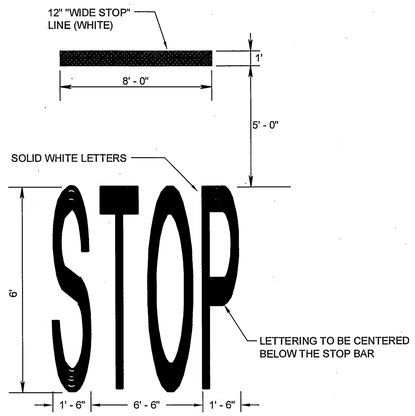
CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

BINDING EDGE

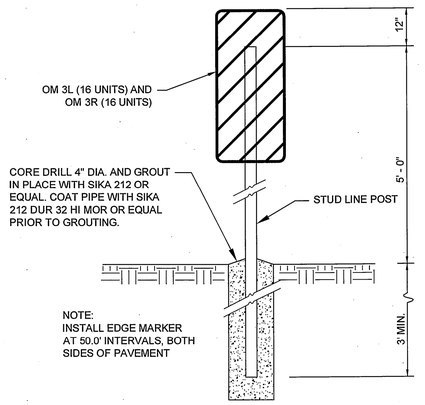




1 **KEEP CLEAR**
NOT TO SCALE



2 **STOP LINE**
NOT TO SCALE



3 **LANE EDGE MARKER - TYP.**
NOT TO SCALE

ISSUED FOR BID

CALL 48 HOURS
BEFORE YOU DIG
1-800-424-5555

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

SCOTT BICKEL — STATE OF WASHINGTON — 26688 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12/09/13

APPROVED:

DAKOTA CHAMBERLAIN
DIRECTOR ENG. DATE

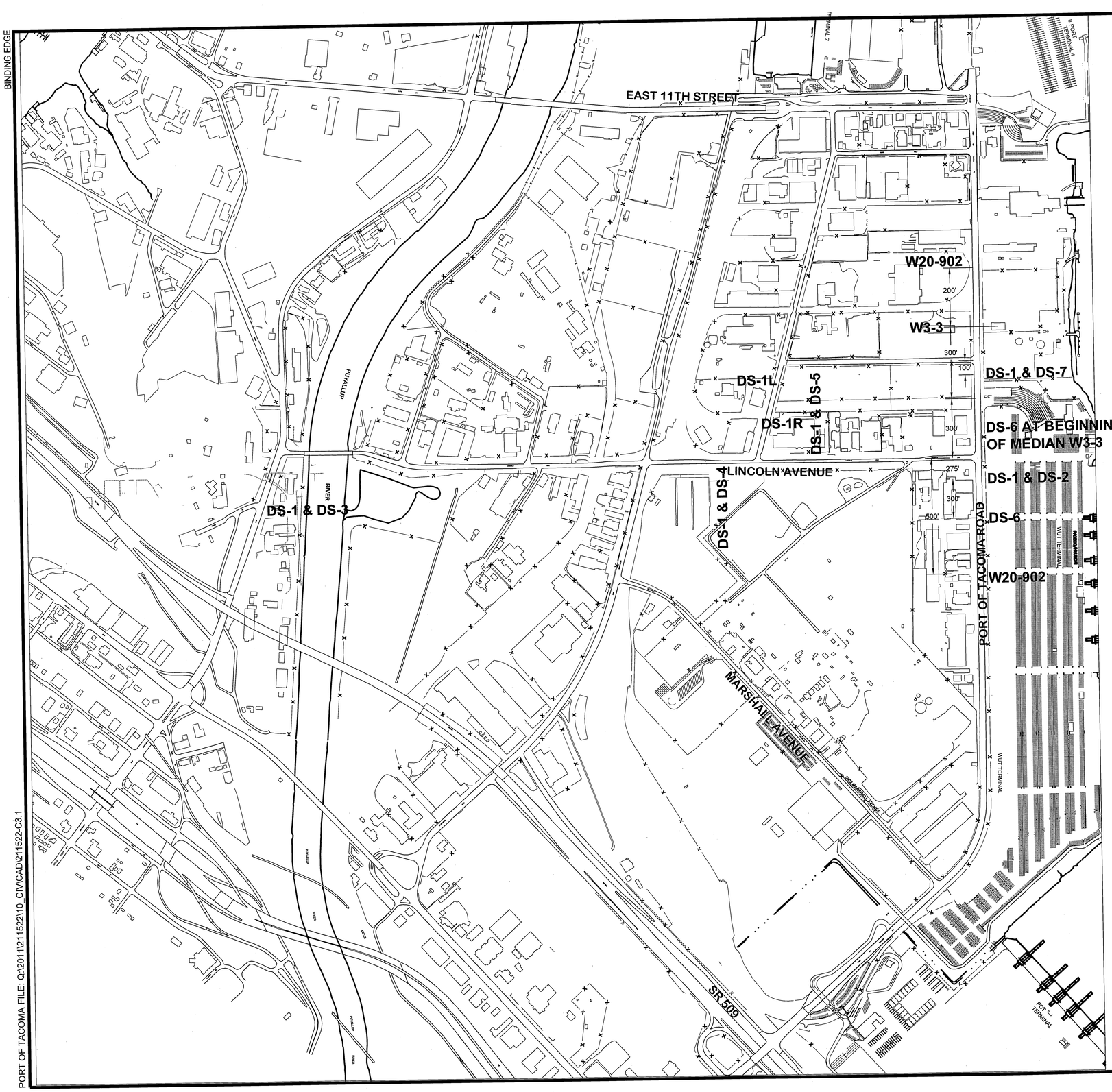
WUT TRUCK QUEUE
STRIPING PLAN

6497
C3.0
SH # 6 OF # 12

CHECKED BY	DATE				
SCOTT BICKEL					
PROJ. ENGR	DATE				
PRINTED BY:	skaui May 02, 2012				
PORT ADDRESS:	ONE SITCUM PLAZA				
	TACOMA, WA 98401-1837				
CONT/ICONS:	069475	SECTION:	3E	TOWNSHIP:	34/35
M. ID:	091237	DAT-HRZ:	WA83-SF	VERT:	MLLW 19.39' @ Tide 22 1933
PHASE:	100%	PARCEL:		DRAWING SCALE:	AS NOTED

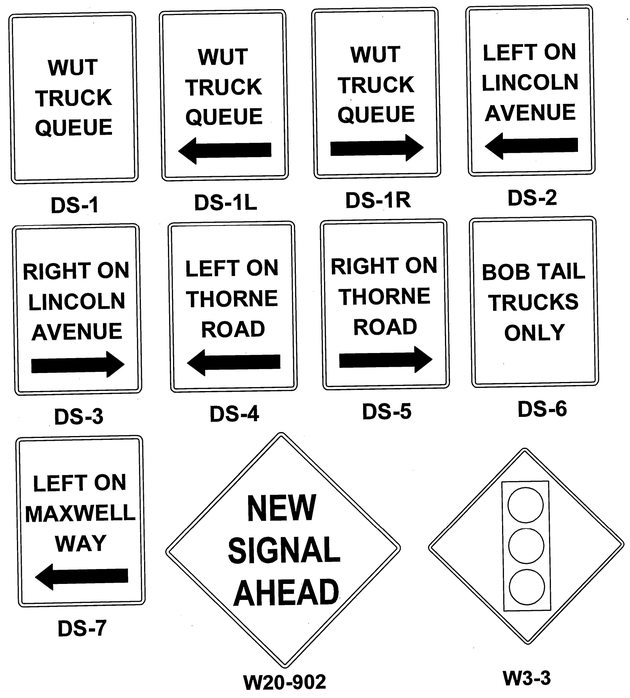
PORT OF TACOMA FILE: Q:\2011\211522\10_CIVICAD\211522-C3.0

BINDING EDGE



NOTE:

1. ALL SIGN LOCATIONS TO BE COORDINATED WITH THE ENGINEER AT TIME OF PLACEMENT.
2. PROVIDE WARNING FLAGS WITH SIGN W20-902 (TYP.)
3. ALL SIGN COMBINATIONS NOT DIMENSIONED, SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
4. SIGN MATERIALS SHALL CONFORM WITH WSDOT 9-28 .



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CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

PORT OF TACOMA U.S.A.

SCOTT BICKEL — STATE OF WASHINGTON — 26888 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES 12/29/13

	CHECKED BY	DATE
DAKOTA CHAMBERLAIN	SCOTT BICKEL	
DIRECTOR ENG. DATE	PROJ. ENGR	DATE
APPROVED:	PRINTED BY: skaul May 02, 2012	
	PORT ADDRESS: ONE SITCUM PLAZA	
	TACOMA, WA 98401-1837	

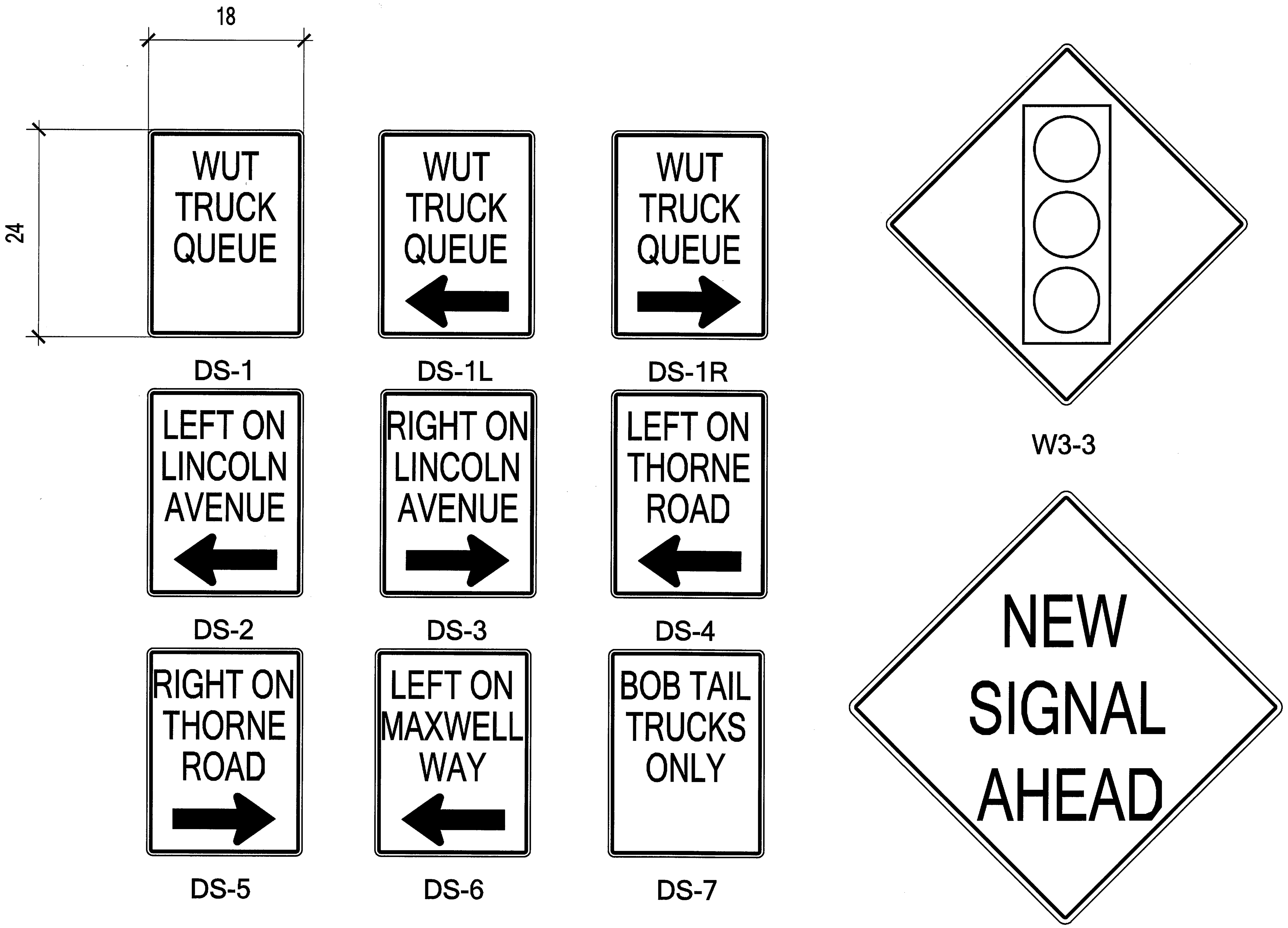
WUT TRUCK QUEUE
SIGN PLAN AND DETAILS

CONT/CONS:	069475	SECTION: 3E	TOWNSHIP: 34/35
M. ID:	091237	DAT-HRZ: WA83-SF	VERT: MLLW 19.39 @ Tide 22 1933
PHASE:	100%	PARCEL:	DRAWING SCALE: AS NOTED

RANGE: 21N

6497
C3.1
SH # 9 OF # 12

PORT OF TACOMA FILE: Q:\2011\211522\10_CIVIL\CAD\211522-C3.1



NOTES:

1. RECTANGULAR SIGNS ARE BASED ON MUTCD R6–2 FOR ALL DIMENSIONING
2. ARROW DIMENSIONS NOT PROVIDED ON R6–2 CAN BE FOUND IN APPENDIX B–4A OF THE WSDOT SIGN FABRICATION MANUAL M 55–05
3. SIGN BACKGROUND COLOR IS WHITE – REFLECTIVE – TYPE II
4. SIGN LETTERING, BORDER AND ARROW ARE GREEN – REFLECTIVE – TYPE III

WUT TRUCK QUEUE
TRAFFIC SIGN DETAILS

6497
C3.2
SH # 10 OF 13

CONT/CONS: 069475 | M. ID: 091237 | PHASE: 100%
TOWNSHIP: 34/35 | RANGE: 21N | SECTION: 3E
DAT–HRZ: WA83–SF | VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: | DRAWING SCALE: 1-1/2"=1'-0"

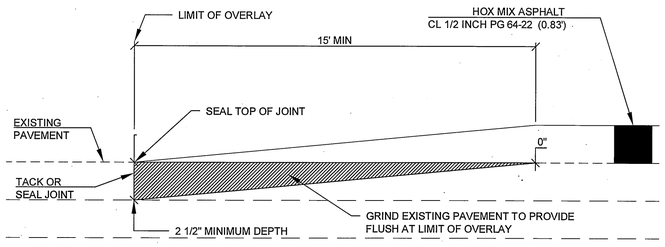
APPROVED:
DAKOTA CHAMBERLAIN | DIRECTOR ENG. DATE
CHECKED BY DATE | SCOTT BICKEL | PROJ. ENGR DATE
PRINTED BY:
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401–1837

MARK: | REVISION: | BY: | APPR: | DATE:

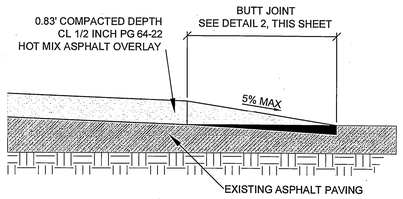
PORT OF TACOMA U.S.A.
PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

BINDING EDGE

BINDING EDGE



1 BUTT JOINT DETAIL
NOT TO SCALE



1. ALL SURFACING AND PAVING DEPTHS SHOWN ARE COMPACTED DEPTHS AND COURSES SHALL NOT EXCEED DEPTHS FOR LIFTS DEFINED IN THE STANDARD SPECIFICATIONS.
2. ALL HMA SHALL BE CL 1/2 INCH PG 64-22.

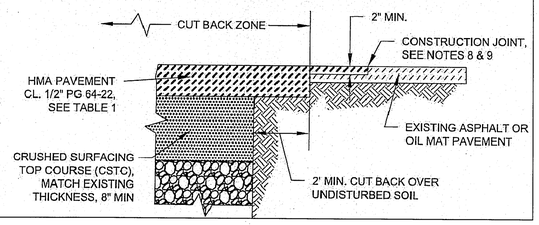
2 PAVEMENT OVERLAY SECTION
NOT TO SCALE

NOTES

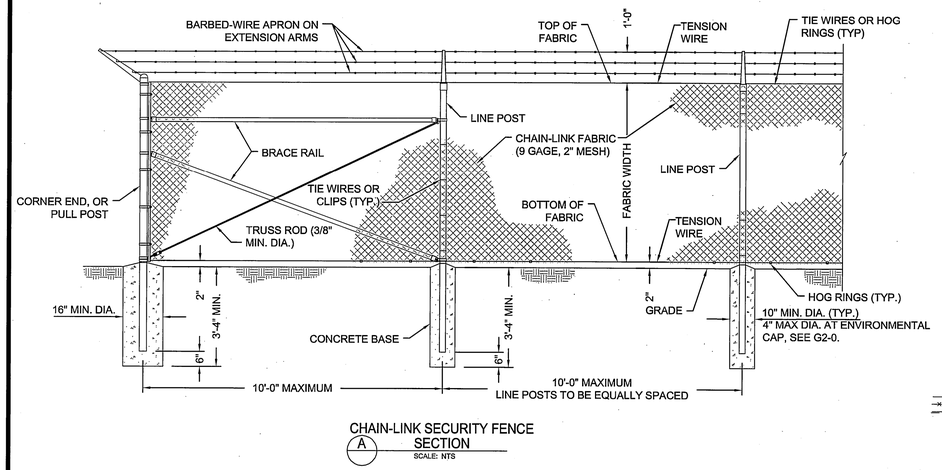
1. **All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy. See Standard Plan SU-15B for any streets exempt from this policy.**
2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residentials and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.
3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.
4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.
5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(6)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Final compaction of HMA shall be 91% of maximum density.
   Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.
   Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.
   Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City's Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.
7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.
8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.
   Streets and courts 20 feet or less in width and all alleys are considered one-lane streets. Non-arterial streets and courts greater than 20 feet in width with no traffic channelization are considered two-lane streets with one-lane either side of the centerline of the street.
   Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer.
9. Transverse construction joints terminate at the edge of the 2' cut back.
10. HMA pavement shall not be placed over CDF until approved by the City.

TABLE 1
PAVEMENT REPLACEMENT DEPTH IN CUT BACK ZONE

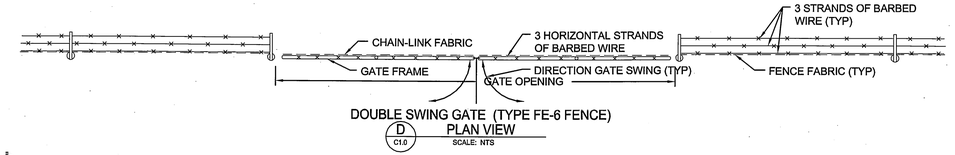
	MIN.	MAX.
ARTERIALS, INDUSTRIAL AREAS & ROADS WITH BUS TRAFFIC	MATCH EXISTING +1", OR 4", WHICHEVER IS GREATER	6"
RESIDENTIALS AND ALLEYS	MATCH EXISTING +1", OR 3", WHICHEVER IS GREATER	4"



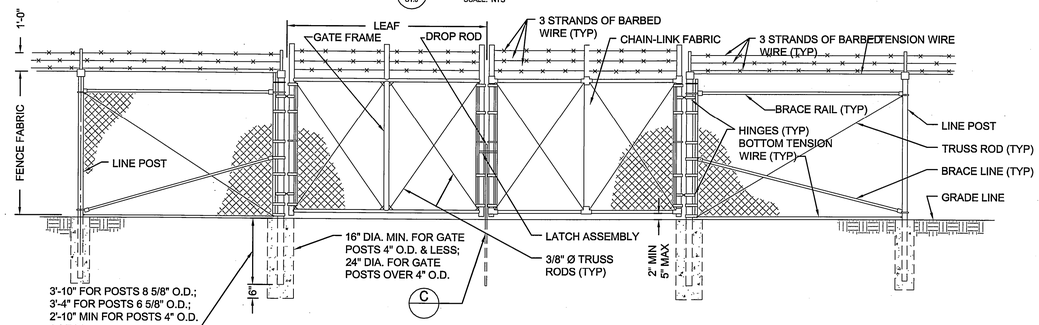
3 TYPICAL TRENCH PATCH FOR ASPHALT CONCRETE AND OIL MAT PAVEMENT
NOT TO SCALE



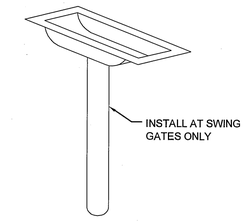
CHAIN-LINK SECURITY FENCE SECTION (A)
SCALE: NTS



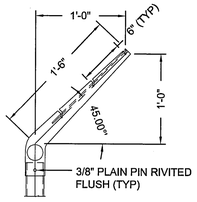
DOUBLE SWING GATE (TYPE FE-6 FENCE) PLAN VIEW (D, C1.0)
SCALE: NTS



DOUBLE SWING GATE ELEVATION (B)
SCALE: NTS

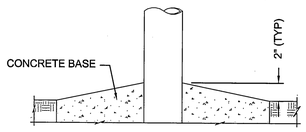


GATE CENTER STOP (C)
SCALE: NTS

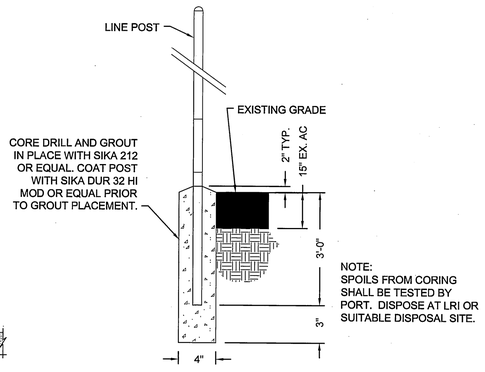


LINE POST
SCALE: NTS

EXTENSION ARM DETAILS
SCALE: NTS



FENCE POST CONC BASE (TYP.)
SCALE: NTS



LINE POST AT ENVIROMENTAL CAP (D)
SCALE: NTS

ISSUED FOR BID

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PORT OF TACOMA, P.O. BOX 1837, TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

PORT OF TACOMA USA

SCOTT BICKEL — STATE OF WASHINGTON — 21618 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 12/5/13

	CHECKED BY	DATE
DIRECTOR ENG.	DAKOTA CHAMBERLAIN	
PRINTED BY:	skaul May 02, 2012	
PORT ADDRESS:	ONE SITCUM PLAZA TACOMA, WA 98401-1837	

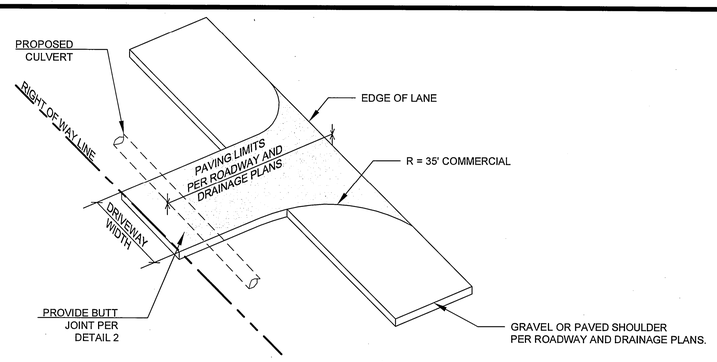
APPROVED:

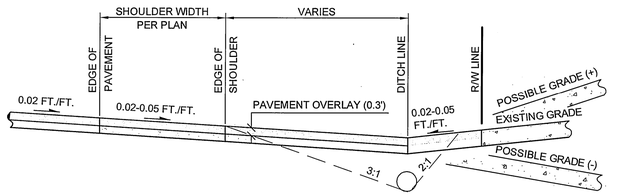
WUT TRUCK QUEUE
FENCE AND PAVEMENT DETAILS

SECTION:	3E	TOWNSHIP:	34/35
RANGE:	21N	DAT-HRZ:	WA83-SF
VERT:	MLLW 19.39' @ Tide 22 1933	PARCEL:	
DRAWING SCALE:	AS NOTED	CONT/CONS:	069475
M. ID:	091237	PHASE:	100%

6497
C4.0
SH # 7 OF # 12

BINDING EDGE





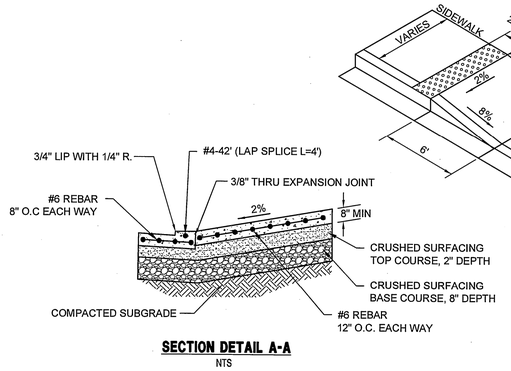
SECTION A–A

NOTES

1. DRIVEWAY WIDTH = MATCH EXISTING.
2. PROTECT EXISTING CULVERTS.
3. ALL COMMERCIAL/INDUSTRIAL DRIVEWAYS SHALL HAVE AN EXPANSION JOINT LOCATED MID-WIDTH. (SEE SEC. 3.04.)
4. DRIVEWAY SLOPE SHALL MATCH TO BACK EDGE OF SHOULDER, BUT SHOULDER SLOPE AND EDGE OF SHOULDER SHALL NOT BE ALTERED AS A RESULT OF DRIVEWAY CONSTRUCTION.
5. DRIVEWAY PAVING FOR EXISTING RESIDENTIAL GRAVEL DRIVEWAYS SHALL BE 2" MINIMUM DEPTH ASPHALT CONCRETE, CLASS 1/2" OVER 2" MINIMUM DEPTH CSTC PAVING FOR EXISTING ASPHALT DRIVEWAY SHALL FOLLOW THE OVERLAY ON THIS SHEET AND THE PREVIOUS SHEET
6. GRADE TRANSITION, EXCLUDING THE TIE TO THE ROADWAY, SHALL BE CONSTRUCTED AS SMOOTH VERTICAL CURVES. THE MAXIMUM CHANGE IN DRIVEWAY GRADE, WITHIN THE R.O.W SHALL BE 8% WITHIN ANY 10 FEET OF DISTANCE ON A CREST AND 12% WITHIN ANY 10 FEET OF DISTANCE ON A SAG VERTICAL CURVE.

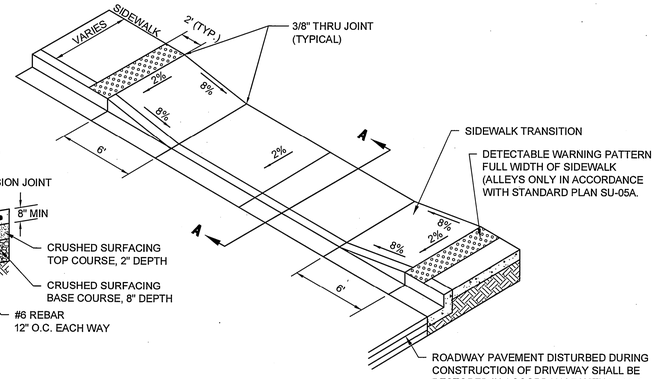
1 TYPICAL DRIVEWAY APPROACH

NOT TO SCALE



SECTION DETAIL A-A

NTS

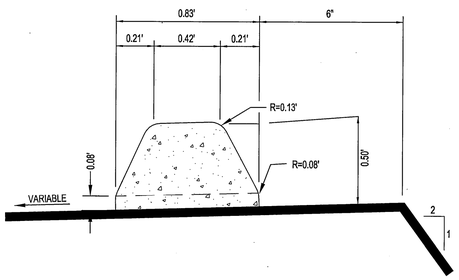


2 CEMENT CONCRETE DRIVEWAY ENTRANCE

NOT TO SCALE

NOTES:

1. MIX SHALL BE CAL PORTLAND 0968. MINIMUM COMPRESSIVE STRENGTH 4,000 PSI IN 7 DAYS.
2. ALL JOINTS SHALL BE CLEANED AND EDGED. EXTERNAL JOINTS TO THE DRIVEWAY SHALL BE 1/2" RADIUS. INTERNAL JOINTS TO THE DRIVEWAY SHALL BE 1/4" RADIUS.
3. DRIVEWAYS WIDER OR NARROWER THAN SHOWN ON THIS PLAN REQUIRE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.
4. DRIVEWAY SECTION SHALL BE A BRUSHED FINISH IN A TRANSVERSE DIRECTION TO THE CENTER LINE OF DRIVEWAY.
5. DRIVEWAYS WIDER THAN 20' REQUIRE A CENTER LINE EXPANSION JOINT.
6. ALL EXPANSION JOINTS SHALL BE FULL DEPTH.
7. WHEN TRENCHING A DRIVEWAY, REPLACEMENTS FOR DRIVEWAYS GREATER THAN 20' IN WIDTH SHALL INCLUDE A MINIMUM 2' WIDE CUT BACK OVER UNDISTURBED SOIL AND EXTEND TO THE NEAREST CONTROL JOINT. REPLACEMENTS FOR DRIVEWAYS 20' OR LESS IN WIDTH WILL REQUIRE A FULL DRIVEWAY REPLACEMENT.
8. ALL JOINTS SHALL BE SAW CUT FULL DEPTH PRIOR TO RESTORATION AND 3/8" EXPANSION JOINT INSTALLED. CUTTING WHEEL RUN-OUT BEYOND THE LIMITS OF THE OPENING SHALL BE FILLED IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 5-05.3(8)B FOR CEMENT CONCRETE SURFACES AND 5-04.3(5)C FOR ASPHALT CONCRETE SURFACES.
9. MINIMUM 5' BETWEEN ADJACENT SIDEWALK TRANSITIONS.



3 EXTRUDED CEMENT CONCRETE CURB

NOT TO SCALE

ISSUED FOR BID

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PORT OF TACOMA FILE: Q:\2011\211522\10_CIVICAD\211522-C4.1

PORT OF TACOMA, P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

PORT OF TACOMA USA

SCOTT BICKEL — STATE OF WASHINGTON — 20988 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 12/29/13

CHECKED BY	DATE
SCOTT BICKEL	
PROJ. ENGR	DATE
skaul May 02, 2012	

PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

APPROVED:

DAKOTA CHAMBERLAIN
DIRECTOR ENG. DATE

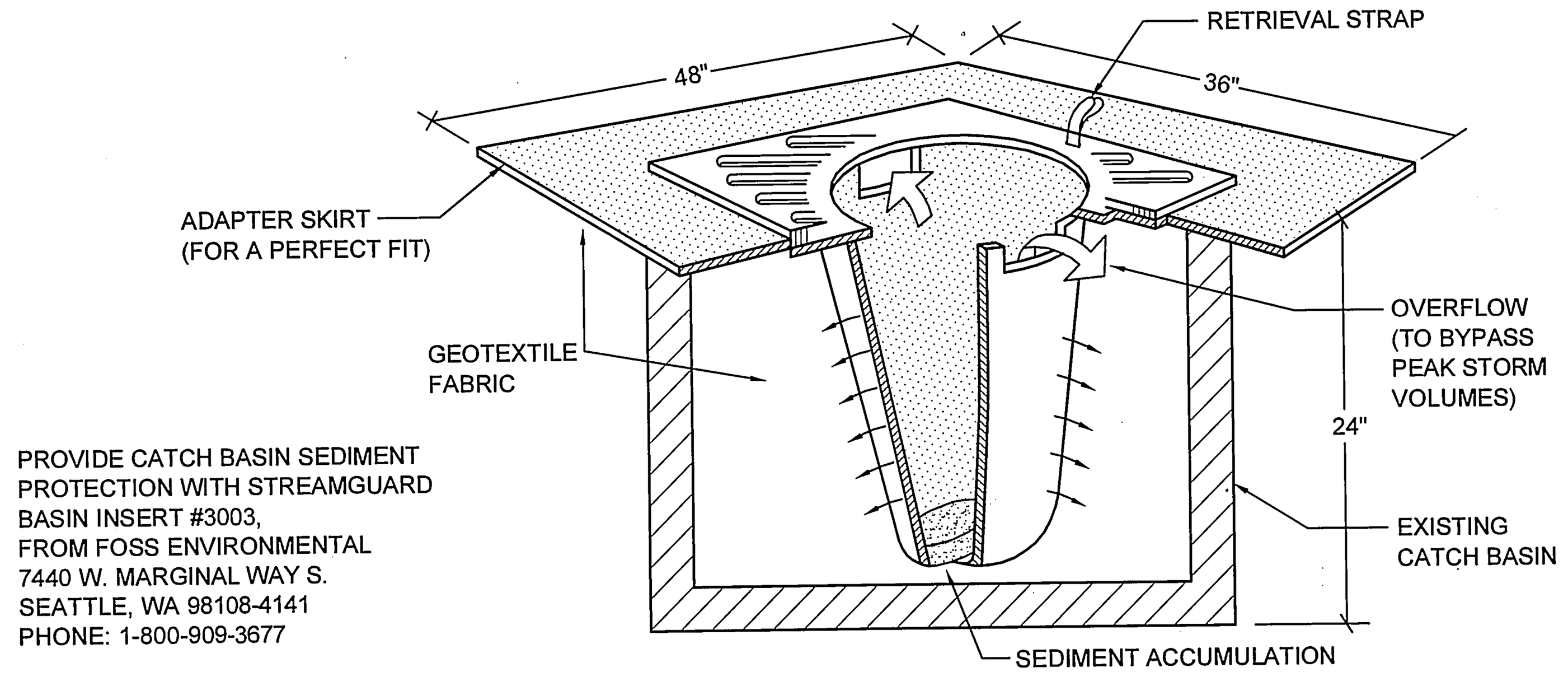
PRINTED BY: skaul May 02, 2012

SECTION:	3E	TOWNSHIP:	34/35
RANGE:	21N		
DAT-HRZ:	WA83-SF	VERT:	MLLW 19.39' @ Title 22 1933
PARCEL:		DRAWING SCALE:	AS NOTED

WUT TRUCK QUEUE
DRIVEWAY AND CURB DETAILS

6497
C4.1
SH # 8 OF # 12

CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

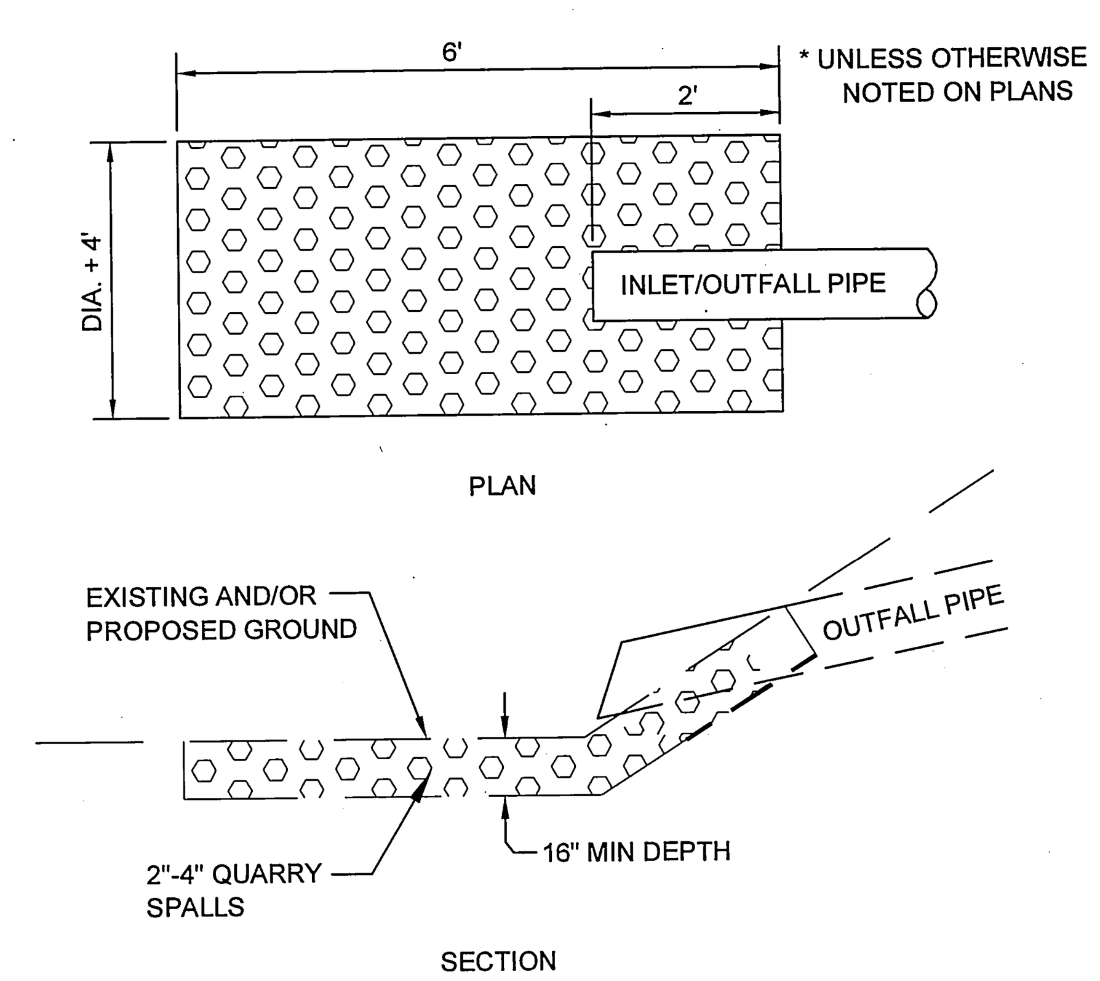


PROVIDE CATCH BASIN SEDIMENT PROTECTION WITH STREAMGUARD BASIN INSERT #3003, FROM FOSS ENVIRONMENTAL 7440 W. MARGINAL WAY S. SEATTLE, WA 98108-4141 PHONE: 1-800-909-3677

#3003 SEDIMENT ONLY

1 INLET PROTECTION

NOT TO SCALE



2 RIP-RAP PAD

NOT TO SCALE

TESC GENERAL NOTES

1. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL ENSURE ALL PREVENTIVE MEASURES ARE IN PLACE AND MAINTAINED TO PREVENT SITE RUNOFF FROM CONTAMINATING ADJACENT PROPERTIES.
2. CONTRACTOR SHALL PERFORM ADDITIONAL CLEARING TO CONSTRUCT ONSITE AND OFFSITE IMPROVEMENTS IF NECESSARY.
3. CONTRACTOR SHALL REPAIR AND MAINTAIN EROSION CONTROL MEASURES TO MEET MINIMUM STANDARDS AS SHOWN ON THIS PLAN AND PROVIDE ADDITIONAL EROSION CONTROL MEASURES TO MEET CHANGING SITE CONDITIONS.
4. SEE GENERAL EROSION CONTROL NOTES THIS SHEET.
5. GENERAL CONTRACTOR SHALL PROVIDE AN ESC SUPERVISOR WHO IS A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD.
6. IF ENGINEERED SOILS SUCH AS CEMENT KILN DUST ARE USED, CONTRACTOR SHALL SAMPLE STORMWATER DISCHARGES FOR pH.
7. RELOCATE EROSION CONTROL MEASURES OR PROVIDE NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE THE EROSION CONTROL IS ALWAYS IN ACCORDANCE WITH THE MINIMUM CITY OF TACOMA TESC REQUIREMENTS.
8. CLEAR AND GRUB ALL TREES WITHIN CLEARING LIMITS UNLESS OTHERWISE NOTED. NOT ALL INDIVIDUAL TREES ARE SHOWN. THE CONTRACTOR SHALL VISIT THE SITE AND INCLUDE ALL TREE REMOVAL IN THEIR BASE BID.
9. CONTRACTOR SHALL INCLUDE IN BASE BID REMOVAL OF ALL TESC MEASURES. TESC MEASURES SHALL NOT BE REMOVED UNTIL SITE IS STABILIZED.
10. CONTRACTOR SHALL SWEEP STREETS DAILY, AS REQUIRED BY THE PORT OF TACOMA AND AT PROJECT COMPLETION.

GENERAL EROSION CONTROL NOTES:

1. 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.).
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE BOUNDARIES OF THE CLEARING LIMITS ARE SHOWN ON THESE PLANS. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED.
4. 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 ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM OR ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. 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.
6. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
7. 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.
8. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN SEDIMENT TRAP. 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.

ISSUED FOR BID

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

MARK:	REVISION:	BY:	APPR:	DATE:

P. SCOTT BICKEL, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER 28888, EXPIRES 12/30/13

APPROVED:		
	CHECKED BY	DATE
DAKOTA CHAMBERLAIN	SCOTT BICKEL	
DIRECTOR ENG. DATE	PROJ. ENGR	DATE
PRINTED BY: skaul May 02, 2012		
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837		

WUT TRUCK QUEUE
TESC NOTES AND DETAILS

SECTION: 3E	TOWNSHIP: 34/35	RANGE: 21N	
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933		
PARCEL:	DRAWING SCALE: AS NOTED		

6497
C4.2
SH # 12 OF # 12

CONT/CONS: 069475
M. ID: 091237
PHASE: 100%

BINDING EDGE

NEMA 3R
SURFACE MOUNTED
10,000 AIC

PANEL SCHEDULE

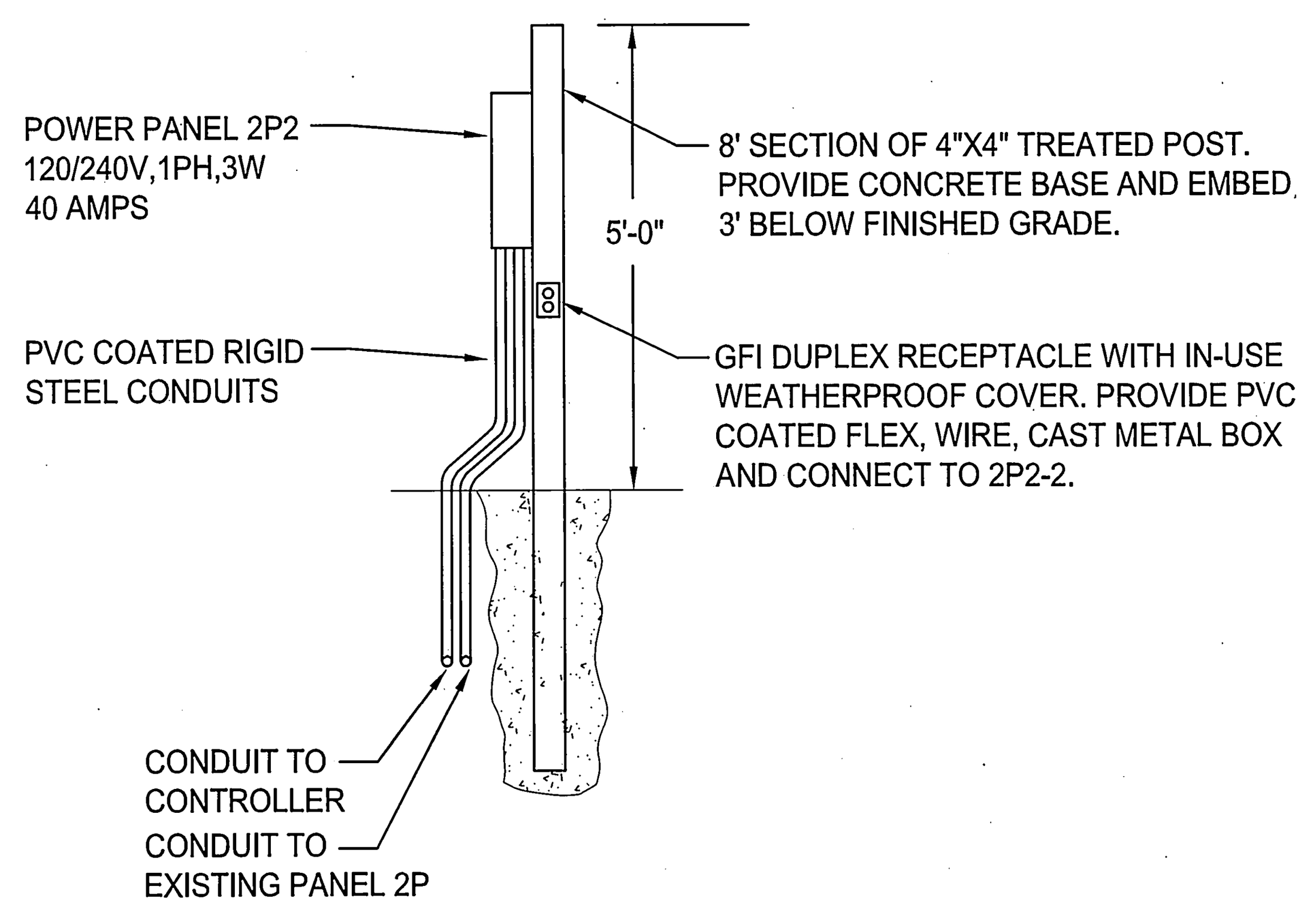
NO. 2P2	LOCATION: WUT SITE SERVING: GATE						120/240 VOLTS 1PH 3WIRE 40 AMPS WITH MAIN LUGS	
CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS		TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	GATE	1.18	20		20	.18	RECEPTACLE	2
3	SPACE						SPACE	4
5	SPACE						SPACE	6
REMARKS: SERVICE ENTRANCE RATE. PROVIDE SERVICE GROUND.					CONNECTED LOAD:		1.4 KVA	6 AMPS
					DEMAND LOAD:		1.4 KVA	6 AMPS

GENERAL NOTES:

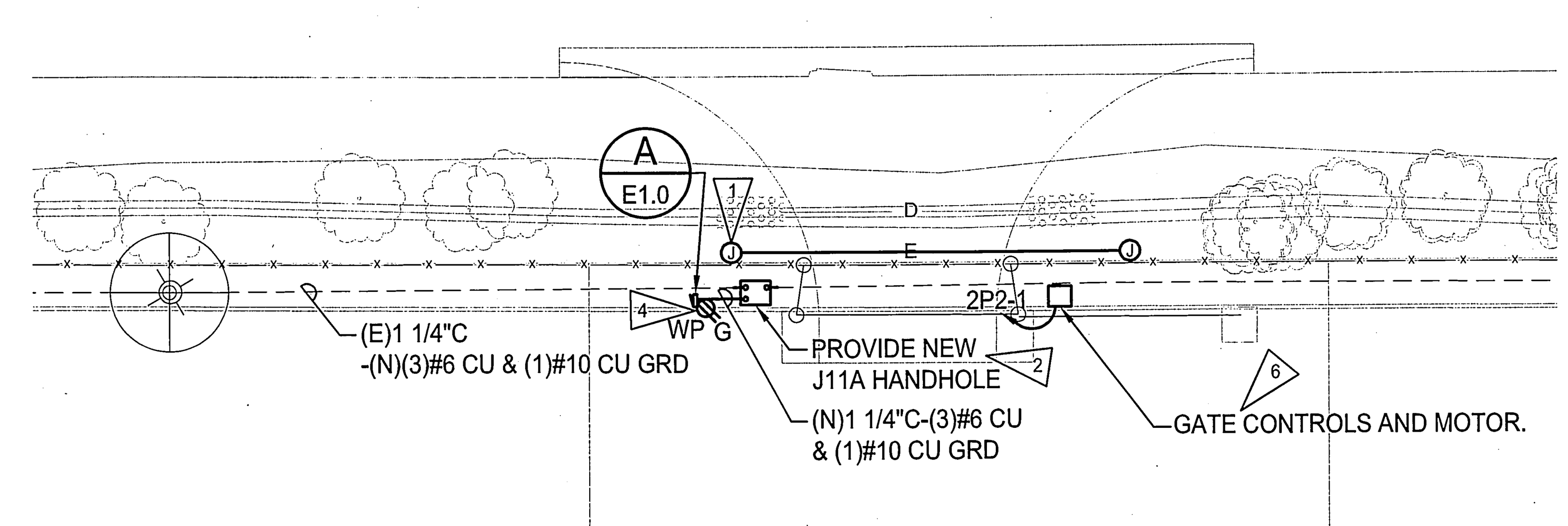
1. CONTRACTOR SHALL OBTAIN ELECTRICAL PERMIT AND INSTALL ALL ELECTRICAL PER THE NATIONAL ELECTRICAL CODE.
2. ALL ELBOWS SHALL BE GALVANIZED RIGID STEEL. ALL CONDUITS INSTALLED ABOVE GRADE SHALL BE PVC COATED RIGID STEEL.
3. SEE G2.0 FOR WORK SEQUENCE AND SPECIFICATION SECTION 011400 FOR WORK RESTRICTIONS.

ELECTRICAL NOTES:

1. CONTRACTOR SHALL PROVIDE (2) 4 SQUARE JUNCTION BOXES, ONE ON EACH GATE POST WITH A 1"C-WITH PULL STRING FOR SECURITY. SECURITY WIRING BY AWC SECURITY CONTRACTOR. INSTALL CONDUIT PRIOR TO PAVING.
2. CONTRACTOR SHALL INTERCEPT EXISTING 1 1/4" CONDUIT, PROVIDE STEEL ELBOWS AND TURN UP INTO NEW J11A HANDHOLE.
3. CONTRACTOR SHALL USE EXISTING 1 1/4"C FROM PANEL 2P. TYPICAL.
4. CONTRACTOR SHALL MOUNT GFI RECEPTACLE TO SIDE OF WOOD POST.
5. CONTRACTOR SHALL DISCONNECT EXISTING GATE TO ALLOW RELOCATION. ABANDON ALL EXISTING BELOW GRADE CONDUITS AT GRADE.
6. PROVIDE 3/4"C AND WIRE FOR RELOCATED KEY PAD CONTROLS (2). PROVIDE NEW CONCRETE PAD FOR GATE MOTOR OPERATOR SIMILAR TO EXISTING.
7. CONTRACTOR SHALL REMOVE (2) SPARE 20A/1P BREAKERS AND PROVIDE NEW 40A/2P BREAKER IN EXISTING 120/240V, 1PH SQUARE D PANEL BOARD 2P TO FEED NEW ELECTRICAL PANEL NEXT TO NEW GATE LOCATION. PROVIDE FINGER SPLICES AS REQUIRED.

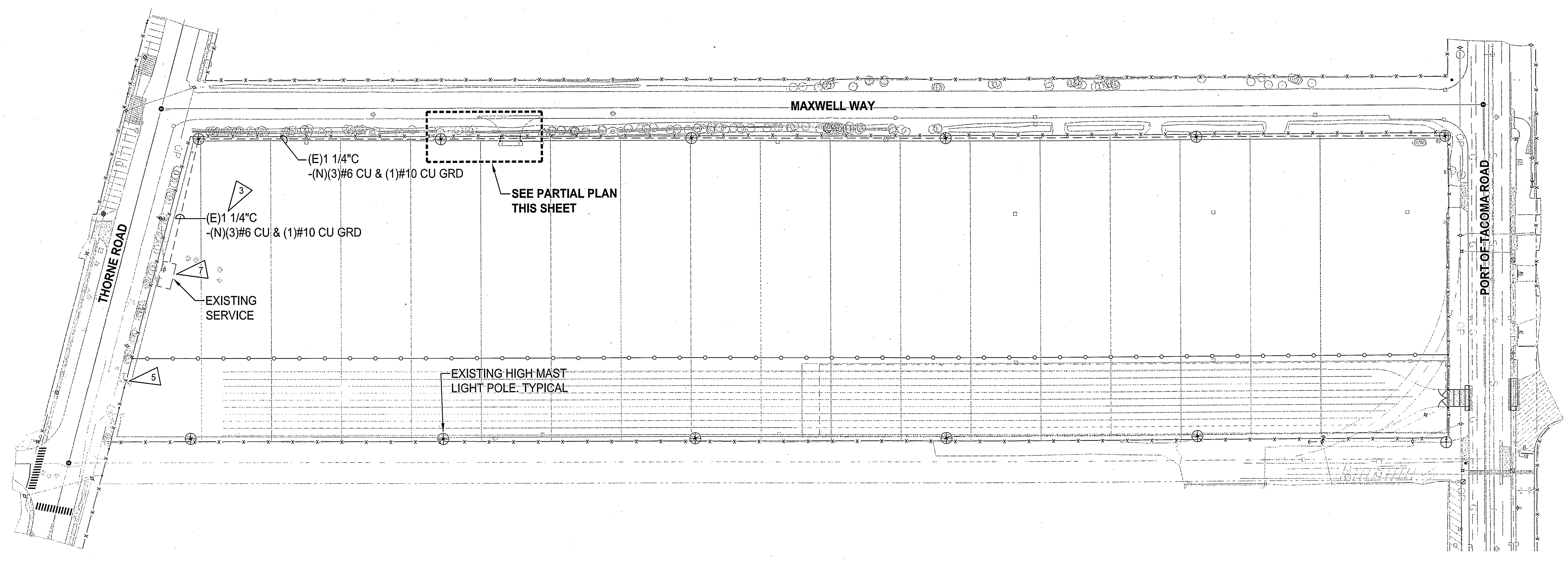


A PANEL MOUNTING
E1.0 SCALE: 1/2"=1'-0"



PARTIAL ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"

GRAPHIC SCALE 1"=20'-0" 20 0 20 40 scale feet



ELECTRICAL SITE PLAN
SCALE: 1"=100'-0"

GRAPHIC SCALE 1"=100'-0" 100 0 100 200 scale feet

PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841
CROSS ENGINEERS, INC
PORT of TACOMA U.S.A.

MARK:	REVISION:	BY:	APPR:	DATE:
A				

APPROVED:
CHIEF ENGR 4.27.2012 DATE
GLW/SLH 4.27.2012 CHECKED BY DATE
GLW 4.27.2012 PROJ. ENGR DATE
PRINTED BY:
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837

WUT TRUCK QUEUE
ELECTRICAL SITE PLAN

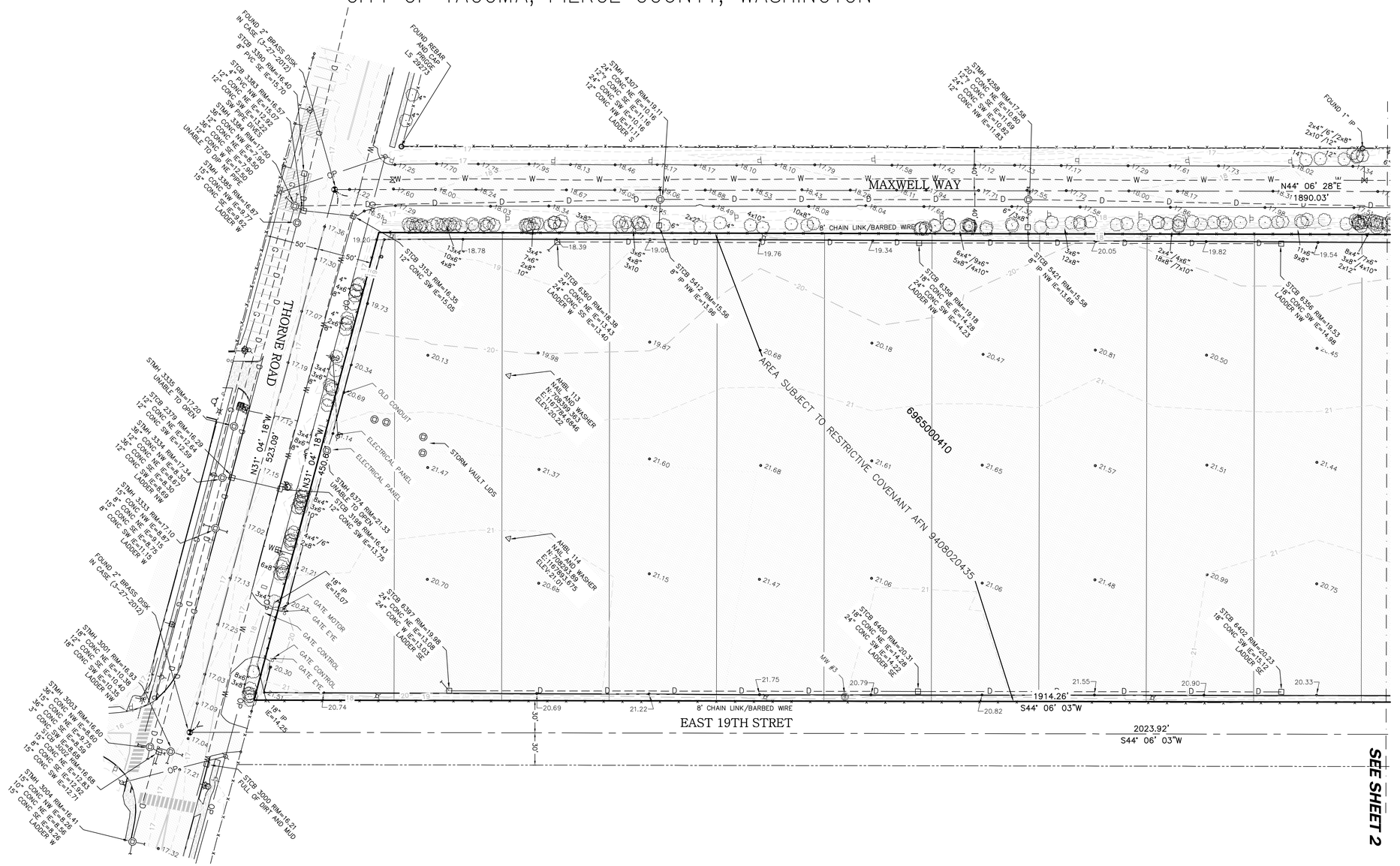
TOWNSHIP: 34/35 RANGE: 21N SECTION: 3E
DAT-HRZ: WA83-SF VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: DRAWING SCALE: AS NOTED

E1.0
SHEET 9 OF 9
CONT/CONS: 069475
E. NUMBER: 091237
PHASE: 100%

BINDING EDGE

WUT GATE MODIFICATION

A PORTION OF SEC. 34 AND 35, TWP 21 N., R. 03 E., W.M., CITY OF TACOMA, PIERCE COUNTY, WASHINGTON



LEGEND

- FOUND MONUMENT AS NOTED
- SET NAIL AND WASHER
- SET REBAR AND CAP
- FOUND PROPERTY CORNER
- MONITORING WELL
- BOLLARD
- MAIL BOX
- SIGN
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- STORM CLEANOUT
- STORM CATCH BASIN
- STORM MANHOLE
- CABLE RISER
- GAS VALVE
- TRAFFIC CABINET
- GUY ANCHOR
- UTILITY POWER POLE
- JUNCTION BOX
- POWER VAULT
- LUMINAIRE
- TELEPHONE RISER
- TELEPHONE VAULT
- BLOW OFF VALVE
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- WATER METER
- WATER MANHOLE
- POST INDICATOR VALVE
- WATER VALVE
- WATER VAULT
- COTTONWOOD TREE
- SEWER LINE
- STORM LINE
- GAS LINE
- WATER LINE
- OVERHEAD UTILITIES
- FENCE
- OIL LINE
- COMMUNICATION LINE
- ELECTRICAL LINE
- RIGHT OF WAY LINE

VERTICAL DATUM

MLLW
PORT OF TACOMA VERTICAL BENCHMARK 104
3" BRASS DISK
ELEV:17.92

BASIS OF BEARING

WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE
PORT OF TACOMA HORIZONTAL CONTROL
HOLDING PORT MONUMENT NUMBERS 104 AND 106.

POINT NO. 104
N=709759.924
E=1168863.031
AT THE INTERSECTION OF PORT OF TACOMA RD W/ MAXWELL WAY.

POINT NO. 106
N=709095.317
E=1169548.713
AT THE INTERSECTION OF PORT OF TACOMA RD W/ LINCOLN AVE.

A LINE BETWEEN THE TWO FOUND MONUMENTS BEARS NORTH 45°53'39" WEST.

SURVEYOR'S NOTES

1. THIS SURVEY WAS PERFORMED BY AHBL TO LOCATE PHYSICAL IMPROVEMENTS, GROUND ELEVATIONS, AND TOPOGRAPHIC FEATURES WITHIN AND IMMEDIATELY ADJACENT TO THE PARCELS LEGALLY DESCRIBED ON THIS MAP. THE BOUNDARY SHOWN HEREON HAS BEEN ADDED TO ASSIST IN DEFINING LIMITS OF THE PARCELS, BUT HAS NOT BEEN FIELD VERIFIED, AND HAS NOT BEEN EXAMINED FOR IDENTIFICATION OF ENCROACHMENTS IN EITHER DIRECTION ACROSS THE BOUNDARIES SHOWN.

2. THE BURIED UTILITIES SHOWN HEREON ARE BASED ON A COMBINATION OF UTILITY LOCATOR MARKINGS AND AS BUILT AND/OR UTILITY DESIGN DRAWINGS, ALL OF WHICH ARE DEEMED RELIABLE. WE CANNOT GUARANTEE THAT ALL UNDERGROUND UTILITIES THAT MAY EXIST WITHIN THE SITE HAVE BEEN SHOWN. CALL 1-800-424-5555 BEFORE ANY CONSTRUCTION.

RELIANCE NOTE

THIS SURVEY WAS PREPARED AT THE REQUEST OF JAN SHAWYER FOR THE SOLE AND EXCLUSIVE USE OF THE PORT OF TACOMA. RIGHTS TO RELY UPON AND, OR USE THIS SURVEY DO NOT EXTEND TO ANY OTHER PARTY EXCEPT THROUGH EXPRESS RECERTIFICATION BY THE PROFESSIONAL LAND SURVEYOR WHOSE STAMP AND SIGNATURE APPEAR HEREON.

EQUIPMENT USED

3" TOTAL STATION UTILIZING STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

SURVEYOR'S CERTIFICATE

I, DAVID C. FOLLANSBEE, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF WASHINGTON, HEREBY CERTIFY THAT THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION IN APRIL 2012 AT THE REQUEST OF THE PORT OF TACOMA.

DAVID C. FOLLANSBEE, 45161 DATE

100 0 50 100 200
(IN FEET)
1 INCH = 100 FT.

Civil Engineers
Structural Engineers
Landscape Architects
Community Planners
Natural Resource Ecologists
Land Surveyors
Neighbors

AHBL
TACOMA · SEATTLE
SPOKANE · TRI-CITIES

2215 North 30th Street, Suite 300 Tacoma, WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

Project Title:

WUT GATE MODIFICATION

Client:

PORT OF TACOMA

PO BOX 1837
TACOMA, WA 98401-1837

JAN SHAWYER
253.428.8638

Job No.

211522.52

Issue Set & Date:

APRIL, 3 2012

DAVID C. FOLLANSBEE STATE OF WASHINGTON DRAFT 45161 REGISTERED PROFESSIONAL LAND SURVEYOR

W:\SDSKPROJ\2011\211522\DWG\C3D.DWG

4 _____
3 _____
2 _____
1 _____

Revisions:

Sheet Title:

TOPOGRAPHIC SURVEY

Designed by:	Drawn by:	Checked by:
	TAD	DF

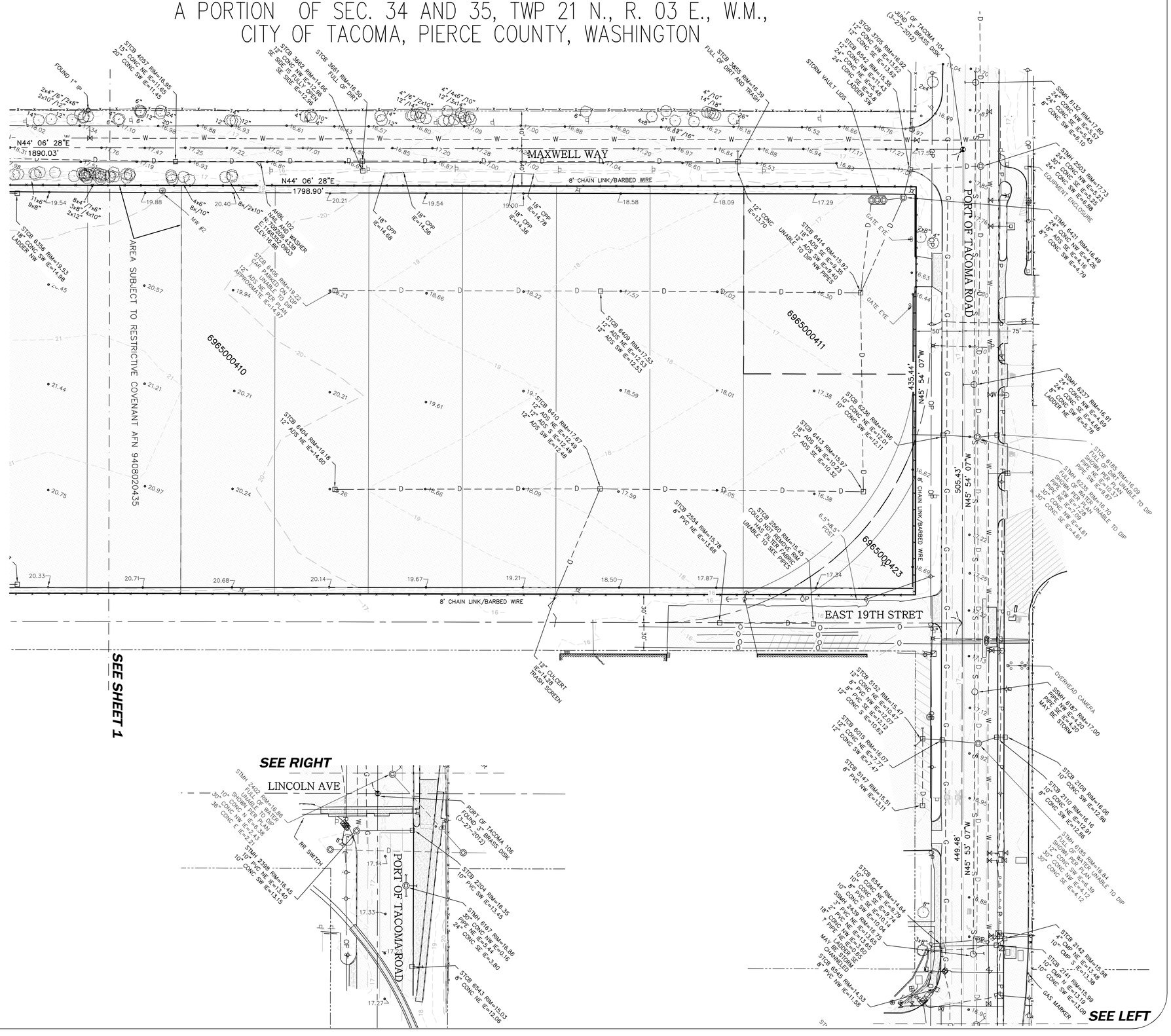
Sheet No.

1

1 of 2 Sheets

WUT GATE MODIFICATION

A PORTION OF SEC. 34 AND 35, TWP 21 N., R. 03 E., W.M., CITY OF TACOMA, PIERCE COUNTY, WASHINGTON



LEGEND

- FOUND MONUMENT AS NOTED
- SET NAIL AND WASHER
- SET REBAR AND CAP
- FOUND PROPERTY CORNER
- MONITORING WELL
- BOLLARD
- MAIL BOX
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- FENCE
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- ELECTRICAL LINE
- RIGHT OF WAY LINE

50 0 25 50 100

(IN FEET)
1 INCH = 50 FT.

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253.428.8638

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211522.52

Issue Set & Date:

APRIL, 3 2012

DAVID C. FOLLANSBEE
STATE OF WASHINGTON
45161
REGISTERED
PROFESSIONAL LAND SURVEYOR

W:\SDSKPRO\J\2011\211522\DWG\C3D.DWG

Revisions:

Sheet Title:

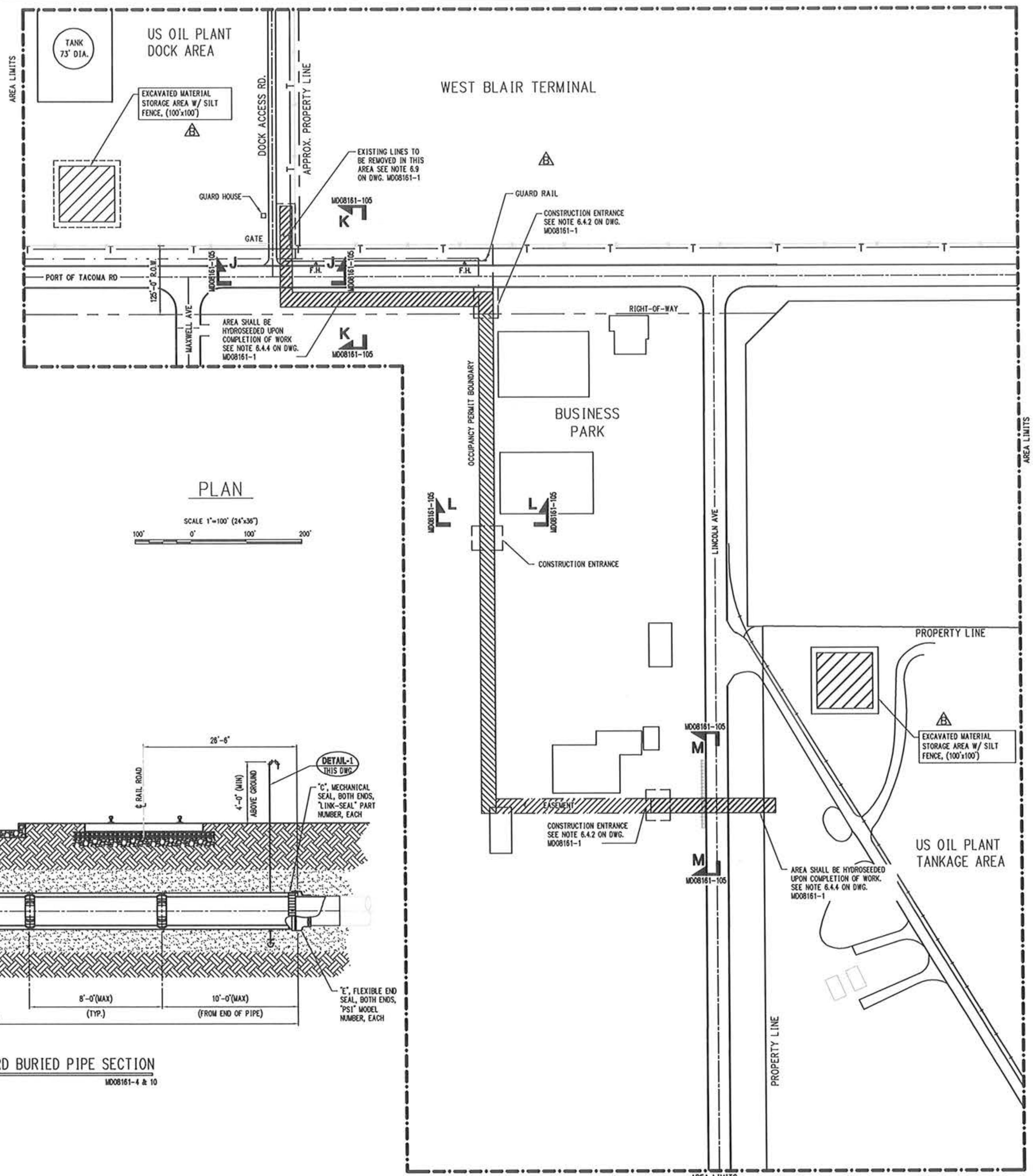
TOPOGRAPHIC SURVEY

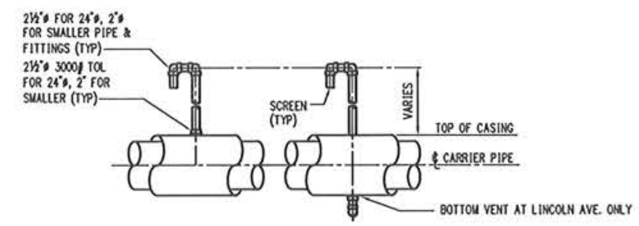
Designed by: TAD | Drawn by: | Checked by: DF

Sheet No.

2

2 of 2 Sheets

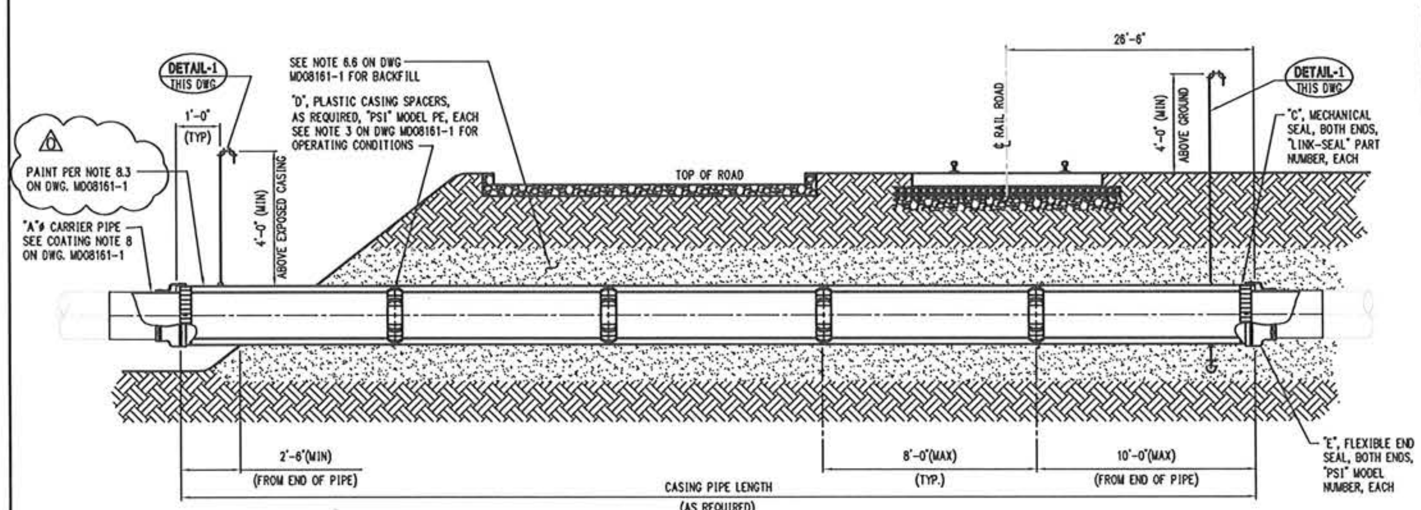




DETAIL 1 CASING VENTS

SCALE: N.T.S.

SEE STANDARD BURIED PIPE SECTION (THIS DWG.)



STANDARD BURIED PIPE SECTION

NO SCALE — MD08161-4 & 10

TABLE 1				
PIPE SIZE "A"	CASING SIZE "B"	MECHANICAL SEAL PART NUMBER "C"	CASING SPACER MODEL NUMBER "D"	FLEXIBLE END SEAL MODEL NUMBER "E"
8"	12" SCH 20	LS-475-0-12	PE 8 x 12	"S" 8 x 12
10"	14" SCH 20	LS-425-0-10	PE 10 x 14	"S" 10 x 14
24"	28" SCH 20	LS-500-0-21 (2428)	PE 24 x 28	"S" 24 x 28

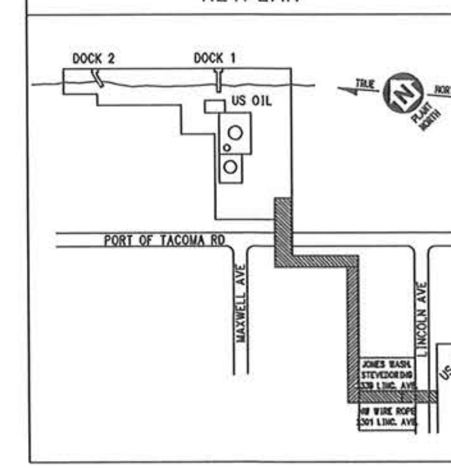
FOR CASING PIPE 3" THRU 10" USE CS ASTM A-53 GR B SMLS (OR EQUIVALENT), SCH PER TABLE 1
FOR CASING PIPE 12" THRU 30" USE CS ASTM A-53 GR B ERW (OR EQUIVALENT), SCH PER TABLE 1

RECOMMENDED VENDOR FOR MECHANICAL SEALS, FLEXIBLE END SEALS AND PLASTIC CASING SPACERS IS PIPELINE SEAL AND INSULATOR, INC. (PSI) / LINK-SEAL.

NOTES:

1. FOR GENERAL NOTES AND SPECIFICATIONS SEE DWG. MD08161-1.

KEYPLAN



LEGEND:

- FENCE
- TELEPHONE AND/OR POWER LINE
- FIRE HYDRANT
- UTILITY POLE

NOTES:

NO.	REVISION	BY	APPR	DATE
0	APPROVED FOR CONSTRUCTION	EAW	CCH	6/5/07
B	ISSUED FOR PERMIT	JLB	KAM	4/24/07
A	ISSUED FOR PERMIT	JLB	KAM	3/27/07

JHI Engineering, Inc.
3420 S.W. Macadam Ave. Portland, OR 97239
PROJECT NO: 06-1117

TITLE: CRUDE HANDLING EFFICIENCY DOCK GRADING AND EXCAVATION PLAN

U.S. OIL & REFINING CO.
3001 MARSHALL AVE. TACOMA, WA

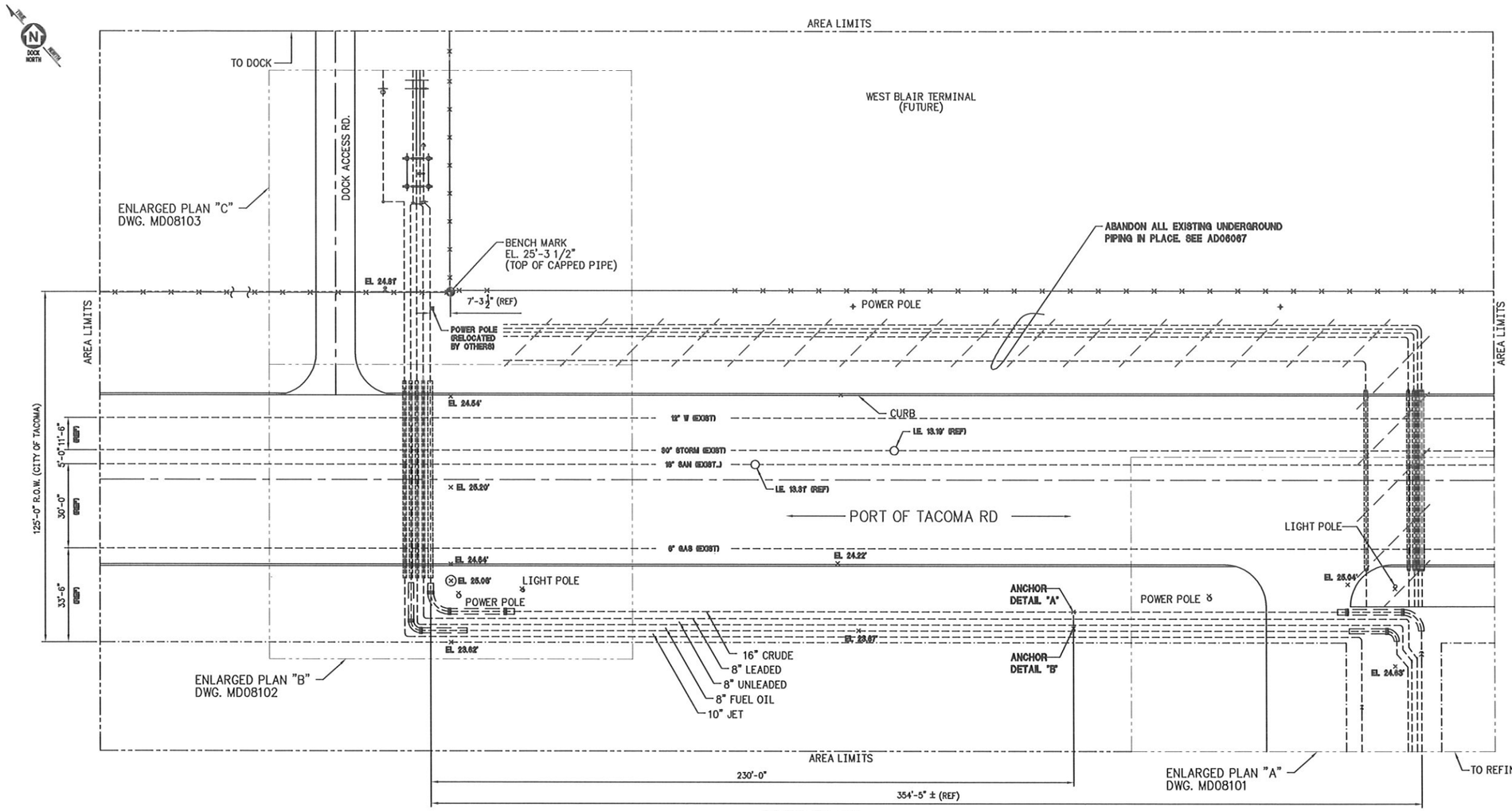
SCALE:	DATE:	PROJ.	FILE NUM.	DWG. NUM.	REV.
NTS	02/12/07	060403-3	MM08161	MD08161-2	0

DRWN: TRJ
CHK'D: KAM
APPR'D:
APPR'D:

REVISIONS				
NO.	DESCRIPTION	BY	APPR	DATE
0	ISSUED FOR CONSTRUCTION	DAB		12/10/97
1	GENERAL REVISION (NORWEST)	KLD		03/10/98
2	AS-BUILT	[illegible]	[illegible]	07/23/98

NOTES:

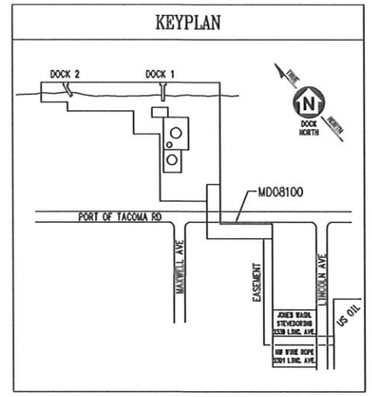
1. FOR GENERAL NOTES AND SPECIFICATIONS SEE DWG. AD08067.
2. TOPOGRAPHIC SURVEY PERFORMED ON 2/10/98
   ALL GRADE ELEVATIONS REFERENCED TO U.S. OILS
   TEMPORARY BENCH MARK AS SHOWN.
3. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.



SITE PLAN

SCALE 1"=20'

KEYPLAN

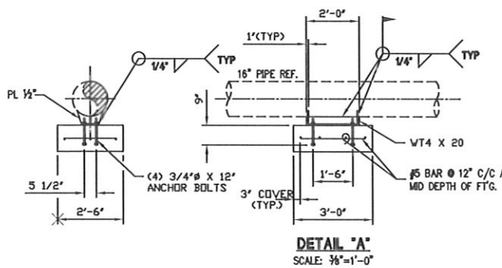


LEGEND

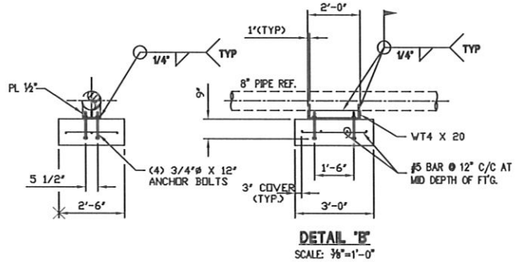
- EXIST. U/G UTILITIES
- NEW U/G PIPING (U.S. OIL)

REFERENCE DRAWINGS:

AD06067	NOTES & SPECIFICATIONS
MD08101	PIPING PLAN
MD08102	PIPING PLAN
MD08103	PIPING PLAN
MD08104	PIPING ISOMETRIC



DETAIL "A"
SCALE: ⅜"=1'-0"



DETAIL "B"
SCALE: ⅜"=1'-0"

SCALE 1"=20' (24X36)

NORWEST ENGINEERING
CONSULTING ENGINEERS PORTLAND, OREGON
AE&C PROJ. NO. 3301

ALPHA ENGINEERS and CONSTRUCTORS, INC.
19 NW 5th AVE, Suite 204, Portland, OR. 97209 (503)227-3317/Fax (503)227-3244

U.S. OIL & REFINING CO.
3001 MARSHALL AVE. TACOMA, WA.

TITLE:
DOCK
TRANSFER LINES AT EASEMENT
GENERAL PIPING PLAN

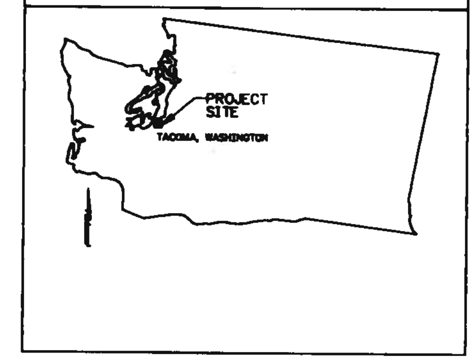
SCALE: 1"=20'	DATE 11/03/97	DRWN. DAB	CHKD. KJP
DWG NUM. MD08100	REV. 2	PROJECT NUM. 971201	APPR.
			APPR.

CASCADE TIMBER REMEDIATION PROJECT

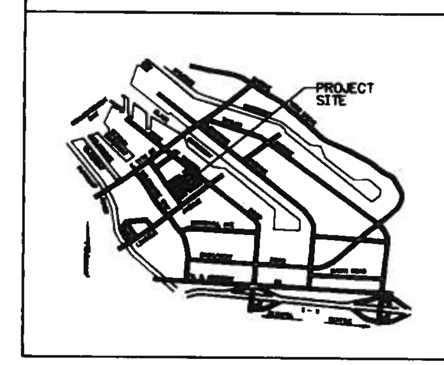
TACOMA, WASHINGTON

CONTRACT NO. 730

LOCATION MAP



VICINITY MAP



DRAWING INDEX

DWG NO.	TITLE	SHT.NO.
G1	COVER SHEET	1
G2	ABREVIATIONS, SYMBOLS & GENERAL NOTES	2
G3	EXISTING SITE PLAN	3
G4	SITE ACCESS AND STAGING AREAS	4
C1	SLAG RELOCATION PLAN	5
C2	SUBGRADE PLAN	6
C3	FINAL GRADING PLAN	7
C4	DRAINAGE PLAN	8
C5	CROSS SECTIONS	9
C6	PAVEMENT DETAILS	10
C7	PAVEMENT DETAILS	11
C8	DRAINAGE DETAILS	12
C9	DRAINAGE DETAILS	13
C10	MISCELLANEOUS DETAILS	14
R1	REFERENCE DRAWING EP-4537-23 SHEET C-23	
R2	REFERENCE DRAWING EP-4537-23 SHEET C-24	

PORT of TACOMA U.S.A.

PORT OF TACOMA

COMMISSIONERS:
ROBERT G. EARLEY
JACK A. FABULICH
MIKE FLETCHER
PATRICK O'MALLEY
JERRY THORPE

EXECUTIVE DIRECTOR:
JOHN J. TERPSTRA, P.E.

CHIEF ENGINEER
CURTIS L. RATCLIFFE, P.E.

ONE SITCUM PLAZA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
(206) 383-5841

GREGORY S. LAIRD — EXPIRES 3/07/1995 — 04/21/94

AUTOCAD FILE NUMBER 607	G1

PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
(206) 383-5841

CONSULTANTS
HLA Harding Lawson Associates
Engineering and Environmental Services
1325 Fourth Avenue, Suite 1800
Phone (206) 622-0812
Fax (206) 292-8619

SEAL

APPROVED: [signature] CHIEF ENGINEER — DATE 4/22/94

JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MED PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	4/94

CASCADE TIMBER REMEDIATION PROJECT

COVER SHEET

DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 1 OF 14

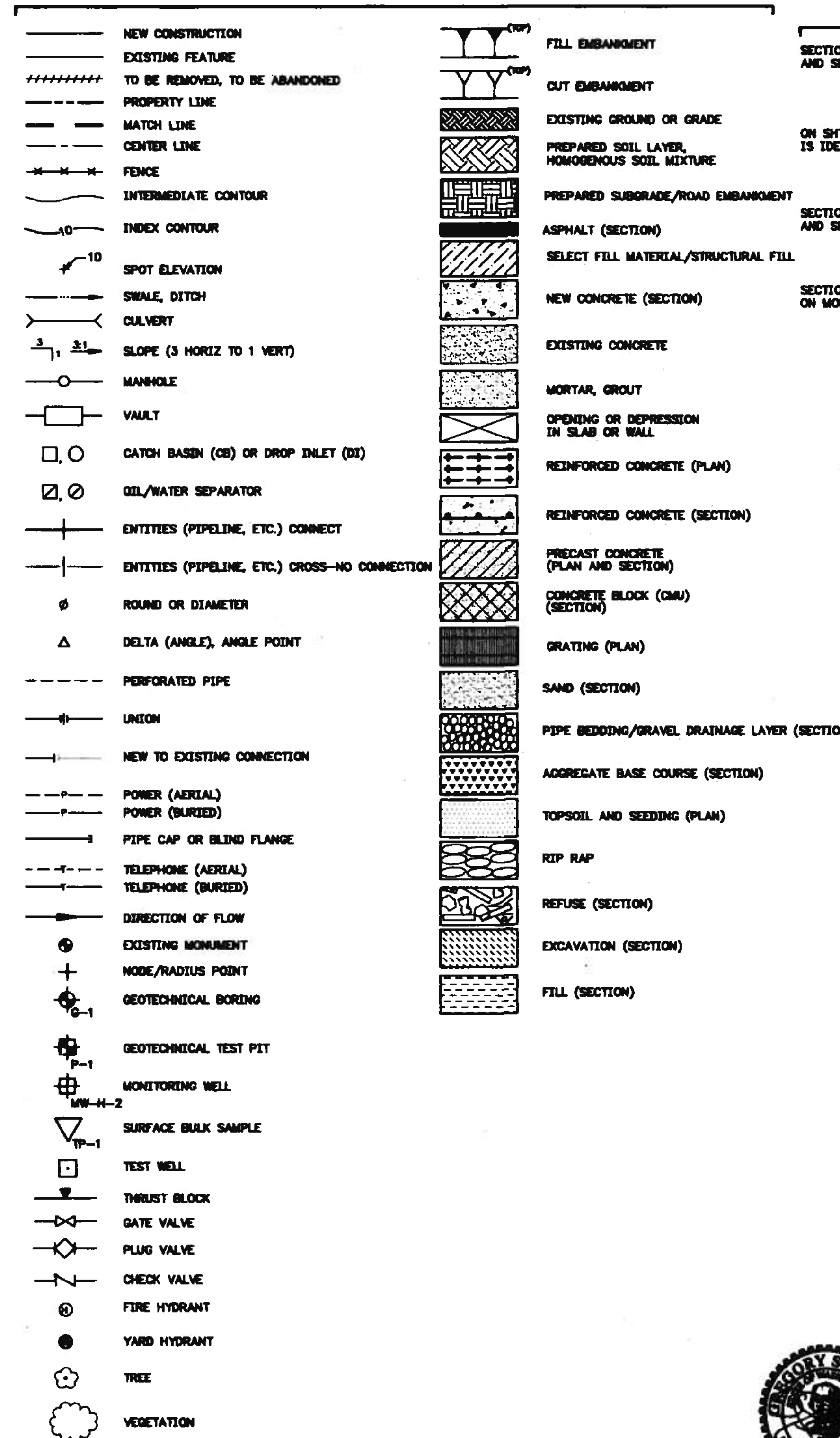
ABBREVIATIONS

&	AND
AB	ANCHOR BOLT
A	ARC LENGTH
AC	ASPHALT CONCRETE
AG	AGGREGATE BASE COURSE
APPROX	APPROXIMATELY
BRG	BEARING
BVC	BEGINNING VERTICAL CURVE
BM	BENCHMARK
BF	BLIND FLANGE
BOR	BORING
BOT	BOTTOM
BLDG	BUILDING
℄	CENTER LINE
CIP	CAST IN PLACE
CI	CAST IRON
CB	CATCH BASIN
CBMH	CATCH BASIN MAN HOLE
CTR	CENTER
CO	CLEANOUT
CL,CLR	CLEAR, CLEARANCE
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONN	CONNECT, CONNECTION
CJ	CONSTRUCTION JOINT
CONT	CONTINUOUS, CONTINUATION
COORD	COORDINATE
CMP	CORRUGATED METAL PIPE
CPEP	CORRUGATED POLYETHYLENE PIPE
CPL	COUPLING
CFM	CUBIC FEET PER MINUTE
CF	CUBIC FEET, COMPRESSION FITTING
CRM	CEMENT RUBBLE MASONRY
CY	CUBIC YARD
DET	DETAIL
DIAG	DIAGRAM
DIA	DIAMETER
DIM	DIMENSION
DBL	DOUBLE
DWG	DRAWING
DI	DUCTILE IRON, DROP INLET
EA	EACH
EF	EACH FACE
EW	EACH WAY
E	EAST
EFF	EFFLUENT
EL, ELEV	ELEVATION
EVC	END VERTICAL CURVE
EQ, EQL	EQUAL, EQUIVALENT
EQUIP	EQUIPMENT
EX, EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FIG	FIGURE
FIN	FINISHED
FLG	FLANGE
FCA	FLANGED COUPLING ADAPTER
FL	FLANGE, FLOOR
FLEX	FLEXIBLE
FT	FOOT
FTG	FOOTING
FM	FORCEMAIN

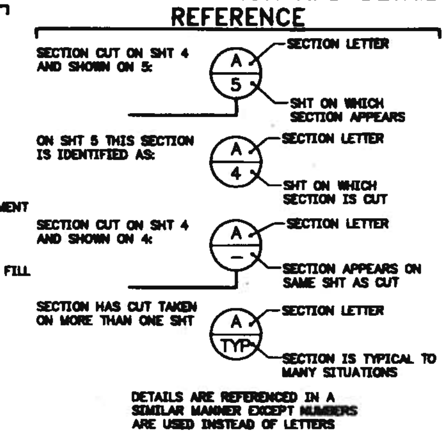
GAL	GALLONS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GALV	GALVANIZED
GSP	GALVANIZED STEEL PIPE
GEN	GENERAL, GENERATOR
GCL	GEOSYNTHETIC CLAY LINER
GR	GRADE
GRD	GROUND
GW	GROUND WATER
GA	GAUGE
H	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE
HI PT	HIGH POINT
HOR, HORIZ	HORIZONTAL
IMBED	IMBEDMENT
IN	INCH
INF	INFLUENT
INV	INVERT
IE	INVERT ELEVATION
LA	LAYER
LCP	LEACHATE COLLECTION PIPE
LCM	LEACHATE COLLECTION MANHOLE
LFM	LEACHATE FORCE MAIN
LTP	LEACHATE TRANSMISSION PIPE
L	LENGTH, LEACHATE
LC	LENGTH OF CURVE – VERTICAL
LF	LINEAL FEET
LOW PT	LOW POINT
MH	MANHOLE
MFG	MANUFACTURER
MAT	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MJ	MECHANICAL JOINT
MG	MILLION GALLONS
MIN	MINIMUM
MOD	MODIFIED
MW	MONITORING WELL
NOM	NOMINAL
N	NORTH, NORTHERN
NTS	NOT TO SCALE
NO., #	NUMBER
OC	ON–CENTER
OPP	OPPOSITE
OD	OUTSIDE DIAMETER, OUTSIDE DIMENTION
ℙ	PROPERTY LINE, PLATE
PERF	PERFORATED
PE	PLAIN END, PROFESSIONAL ENGINEER
PC	POINT OF CURVATURE – HORIZONTAL
PI	POINT OF INTERSECTION – HORIZONTAL
PT	POINT OF TANGENCY – HORIZONTAL
PVC	POINT OF VERTICAL CURVE, POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PSIG	POUNDS PER SQUARE INCH, GAUGE
PUD	PUBLIC UTILITY DISTRICT

R	RADIUS
RP	RADIUS POINT
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
SCH	SCHEDULE
SEC, SECT	SECTION, SECTOR
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
S	SOUTH
SPEC	SPECIFICATION
SCV	SPILL CONTAINMENT VESSEL
SPL	SPLICE, SPECIAL
SPL'D	SPLICED
SQ	SQUARE
SS	STAINLESS STEEL, SANITARY SEWER
STD	STANDARD
STA	STATION
STL	STEEL
SD	STORM DRAIN
STRUCT	STRUCTURAL
SYM	SYMETRICAL
T	TANGENT LENGTH
TBM	TEMPORARY BENCH MARK
TW	TEST WELL
TP	TEST PIT
THK	THICK
TRANSV	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
US	UTILITY STATION
VAR	VARIES, VARIABLE
VERT	VERTICAL
VC	VERTICAL CURVE
WM	WATER MAIN
WS	WATER SURFACE
W	WEST, WIDTH, WIDE, WATER
W/	WITH
W/O	WITHOUT

SYMBOLS



TECHNICAL SECTION AND DETAIL REFERENCE



GENERAL NOTES:

1. ADDITIONAL ABBREVIATIONS CONFORM TO ANSI Y1.1–A72 AISC STANDARD ABBREVIATIONS.
2. NOT ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS DRAWING HAVE BEEN USED IN THIS SET OF DRAWINGS.
3. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
4. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW). DATUM (USGS).
5. HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983).
6. LOCATION OF MONITORING WELLS AND OTHER SURFACE FEATURES ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.
7. CONTOURS SHOWN ARE IN HALF FOOT INTERVALS.

EXPIRES MAY 1995
04/21/94

AUTOCAD FILE NUMBER 607

G2

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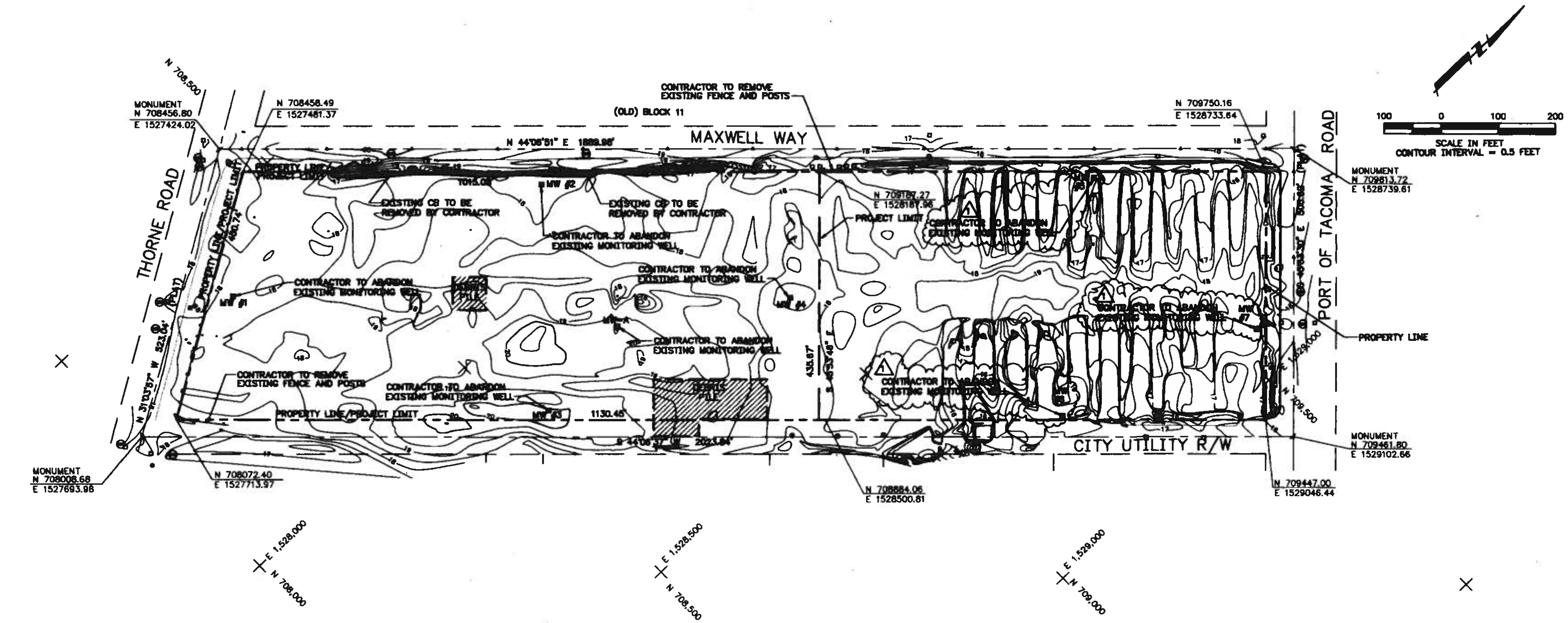
APPROVED
CHIEF ENGINEER 4/22/94 DATE

JSR DRAWN BY 4/94 DATE
AS-BUILT BY DATE
GSL CHECKED BY 4/94 DATE
MED PROJ.ENGR. 4/94 DATE

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	4/28/94

CASCADE TIMBER REMEDIATION PROJECT
ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES

DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 2 OF 14



NOTES:

1. THE LOCATION AND SIZE OF THE DEBRIS STOCKPILE IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY.
2. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
3. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW), DATUM (USGS).
4. HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983). PROPERTY COORDINATES MARKED WITH REBAR AND CAP STAMPED "LS 18082". BY SITTS AND HILL ENGINEERS, INC., MARCH 1984.

△ COORDINATES, BEARINGS, AND DISTANCES REVISED.

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DRAWN BY	DATE	CHECKED BY	DATE
JSR	4/94	GSL	4/94
AS-BUILT BY	DATE	MED PROJ.ENGR.	4/94

MARK	REVISION	BY	APP.	DATE
△	ADDENDUM NO.1	JSR	GSL	4/94

EXPIRES 5/9/1995
04/21/94

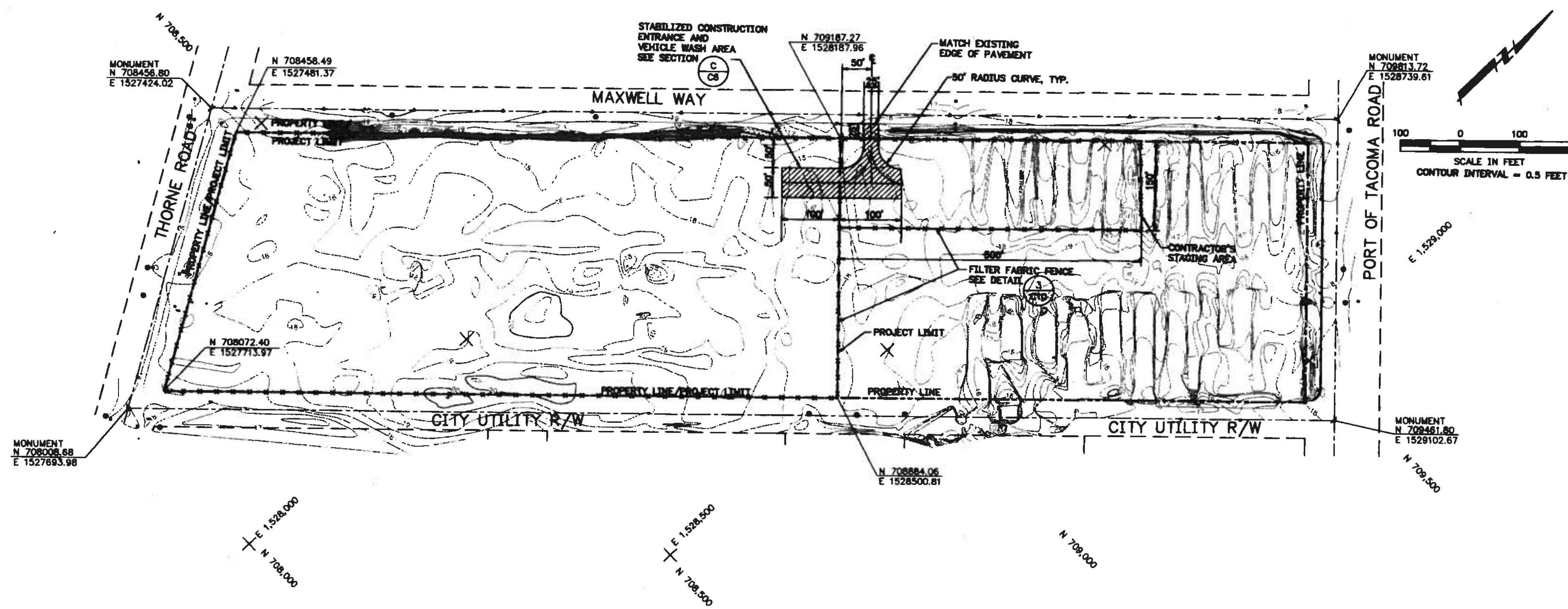
CASCADE TIMBER REMEDIATION PROJECT

EXISTING SITE PLAN

AUTOCAD FILE NUMBER 607

G3

DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 8 OF 14



⚠ COORDINATES REVISED

NOTES:

1. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
2. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW) DATUM (USGS).
3. ⚠ HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983). PROPERTY COORDIANTES MARKED WITH REBAR AND CAP STAMPED "LS 18082", BY SITTS & HILL ENGINEERS, INC., MARCH 1994.

GREGORY S. LARSEN
EXPIRES 3/31/ 1995
04/21/94

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MARK	REVISION	BY	APP.	DATE
⚠	ADDENDUM NO.1	JSR	GSL	6/3/94

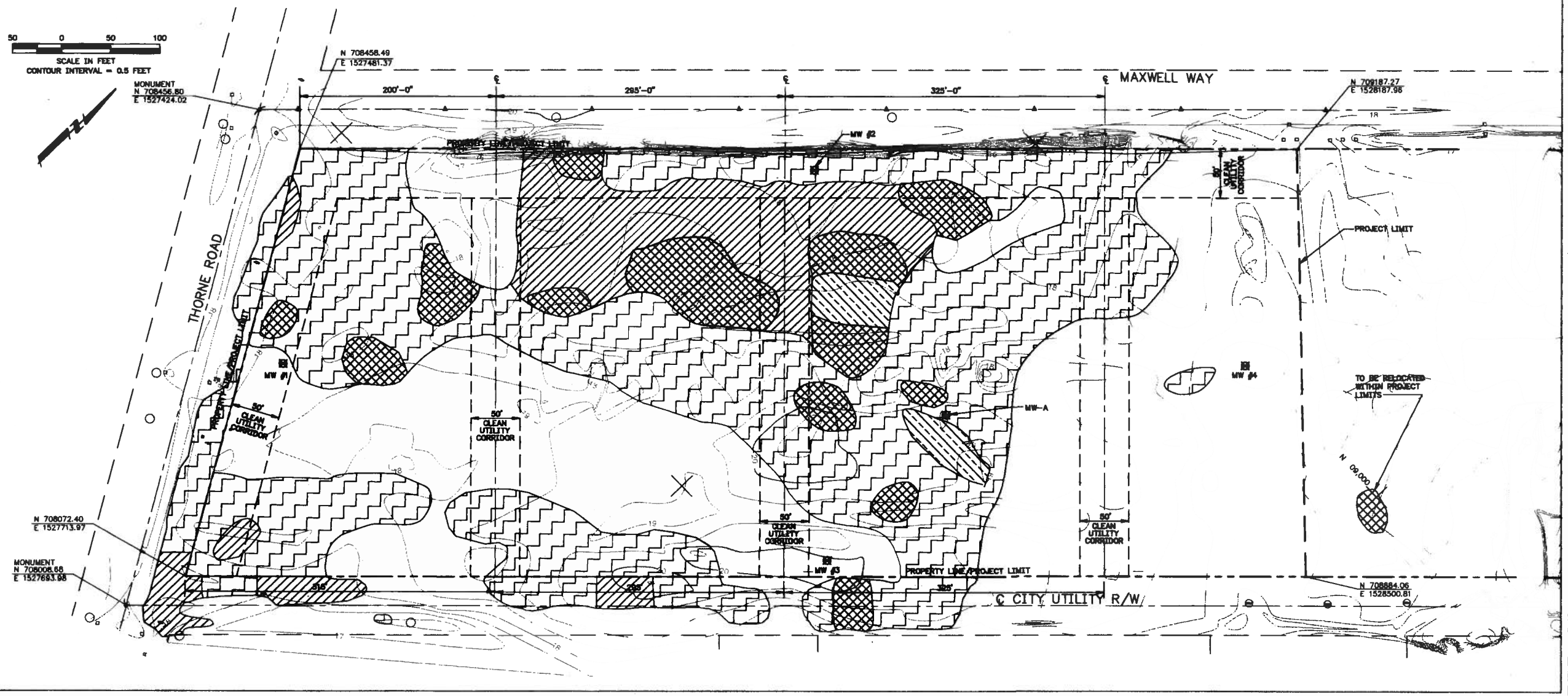
CASCADE TIMBER REMEDIATION PROJECT

SITE ACCESS AND STAGING AREAS

AUTOCAD FILE NUMBER 507

G4

DRAWING NO. EP-4670-16
CONTRACT NO. 730
SHEET NO. 4 OF 14



⚠ COORDINATES REVISED

LEGEND

- EXTENT OF SLAG 0.0 TO 0.5 FOOT DEPTH INTERVAL
- EXTENT OF SLAG 0.5 TO 1.0 FOOT DEPTH INTERVAL
- EXTENT OF SLAG 1.0 TO 2.0 FOOT DEPTH INTERVAL
- EXTENT OF SLAG 2.0 TO 4.5 FOOT DEPTH INTERVAL

NOTES:

1. SLAG AND ONE FOOT OF SOIL IN THE CLEAN UTILITY CORRIDORS WILL BE REMOVED TO OTHER AREAS OF THE SITE AND INCLUDED UNDER THE CAP.
2. CLEAN UTILITY CORRIDORS ARE FOR FUTURE UTILITY INSTALLATION BY OTHERS, NOT FOR THE STORM DRAIN SYSTEM.
3. SOURCE OF DRAWING: REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT, CASCADE TIMBER NO. 3 LOG SORT YARD, HARDING LAWSON ASSOCIATES, AUGUST 16, 1993.
4. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
5. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW) DATUM (USGS).
6. ⚠ HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983). PROPERTY COORDINATES MARKED WITH REBAR AND CAP STAMPED "LS 18082", BY SITTS & HILL ENGINEERS, INC., MARCH 1994.

GREGORY S. LAIRD — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON
EXPIRES 9/02/1995
04/21/94

AUTOCAD FILE NUMBER 607 — C1

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APPROVED
CHIEF ENGINEER — 4/21/94 DATE

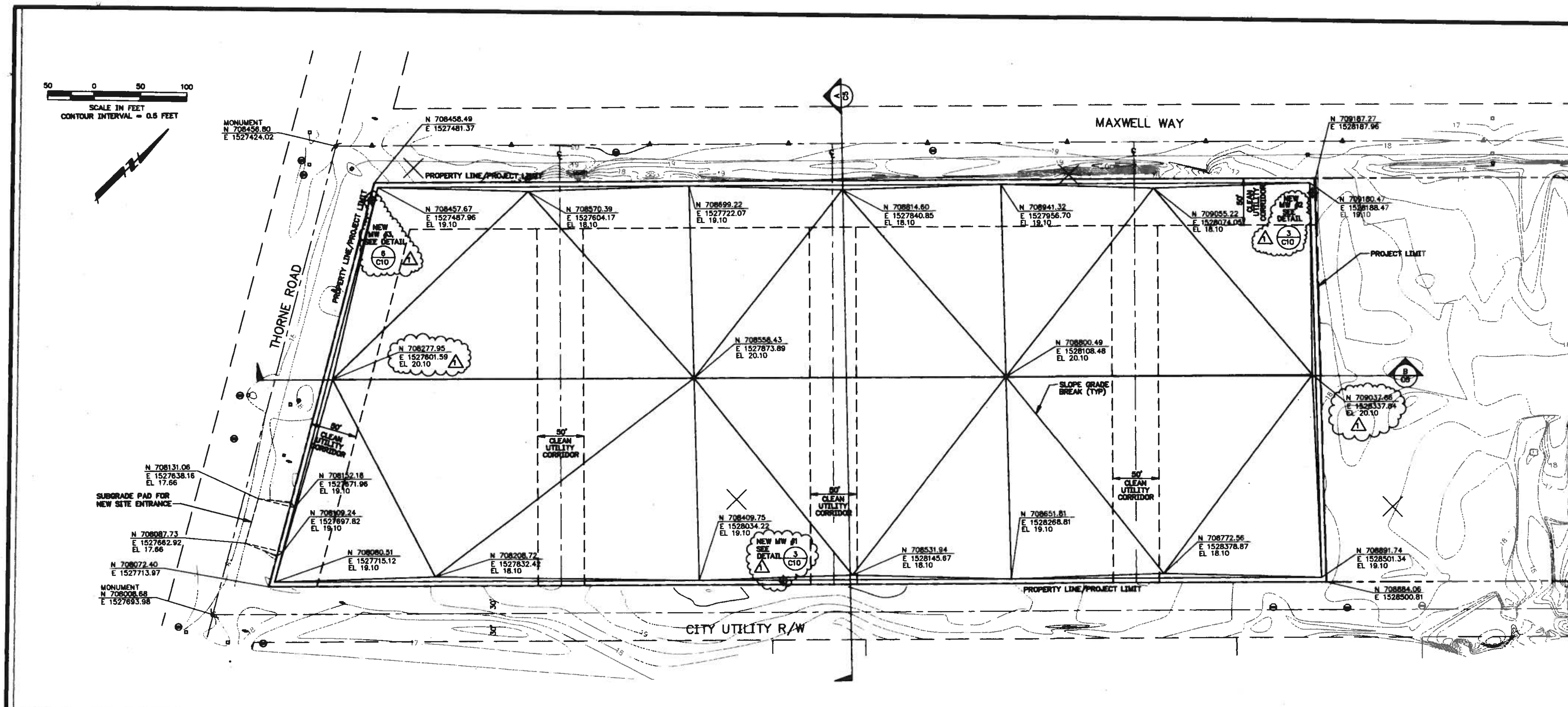
JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MDD PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
⚠	ADDENDUM NO.1	JSR	GSL	4/21/94

CASCADE TIMBER REMEDIATION PROJECT

SLAG RELOCATION PLAN

DRAWING NO. EP-4670-13
CONTRACT NO. 730
SHEET NO. 5 OF 14



PROPERTY LINE CORNER COORDINATES REVISED

NOTES:

1. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
2. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW) DATUM (USGS).
3. HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983). PROPERTY COORDINATES MARKED WITH REBAR AND CAP STAMPED "LS 18082, BY SITTS & HILL ENGINEERS, INC., MARCH 1994.
4. INSTALLATION OF NEW MONITORING WELLS SHOULD BE LOCATED WITHIN 5 FEET OF THE PROPERTY LINE.

GREGORY S. LAIRD — EXPIRES 5/94 1995 — 04/21/94

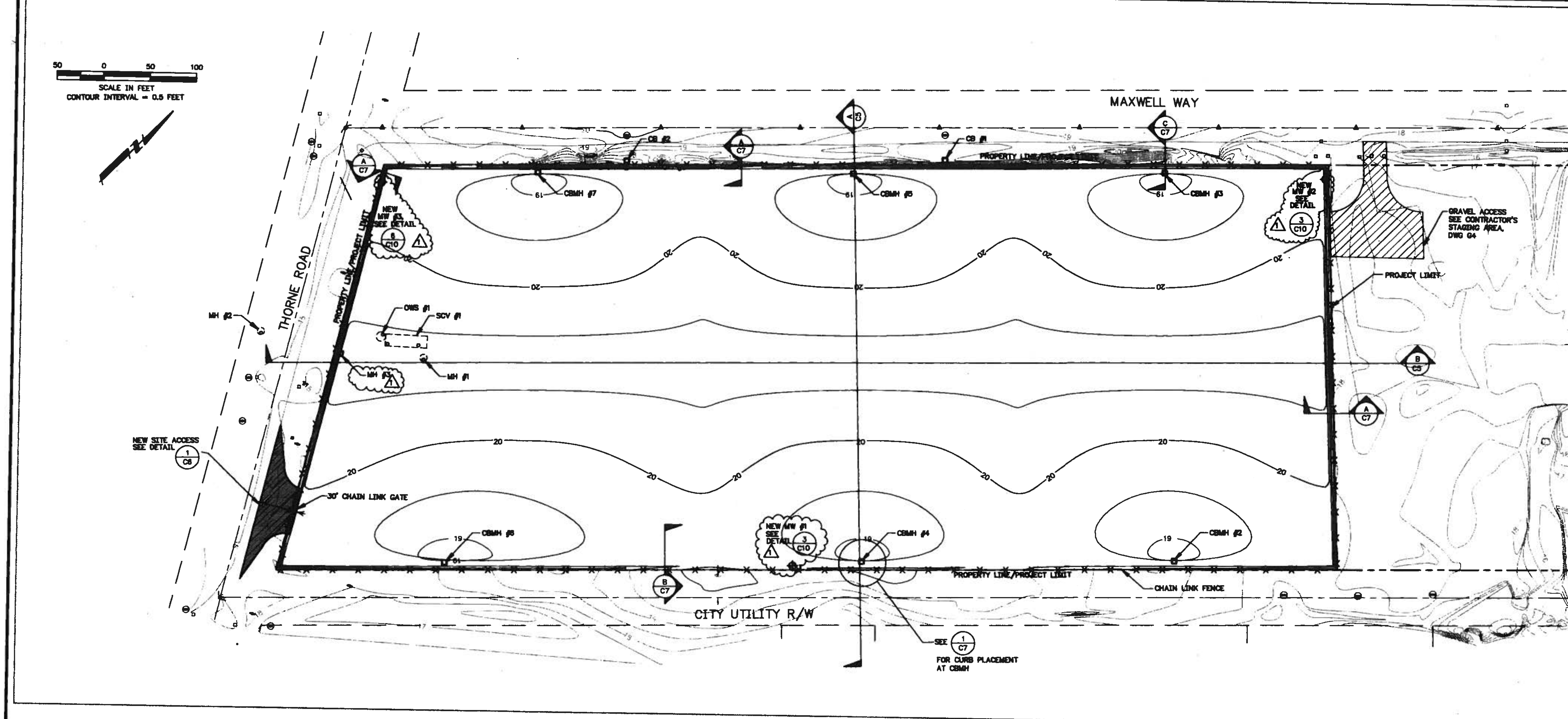
PORT OF TACOMA P.O. BOX 1837 TACOMA, WASHINGTON 98401 (206) 383-5841	CONSULTANTS Harding Lawson Associates Engineering and Environmental Services 1325 Fourth Avenue, Suite 1800 Phone: (206) 622-0812 Fax: (206) 292-6619	SEAL	APPROVED CHIEF ENGINEER 4/22/94 DATE	DRAWN BY JSR 4/94 DATE; CHECKED BY GSL 4/94 DATE; AS-BUILT BY DATE; PROJ. ENGR. MDD 4/94 DATE	MARK 1 ADDENDUM NO.1 REVISION, BY JSR, APP. GSL, DATE 4/22/94

CASCADE TIMBER REMEDIATION PROJECT

SUBGRADE PLAN

AUTOCAD FILE NUMBER 607 — C2

DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 6 OF 14



NOTES:

1. CONTRACTOR TO ADJUST GRADE BETWEEN OUTSIDE EDGE OF CURBING TO MEET GRADE 5 FEET AWAY AT THE PROPERTY LINE/ PROJECT LIMIT. SEE DETAILS ON DRAWING C7 FOR MORE INFORMATION.
2. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
3. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW) DATUM (USGS).
4. HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983).

GREGORY S. LAIRD — EXPIRES 3/19/1995 — 04/21/94

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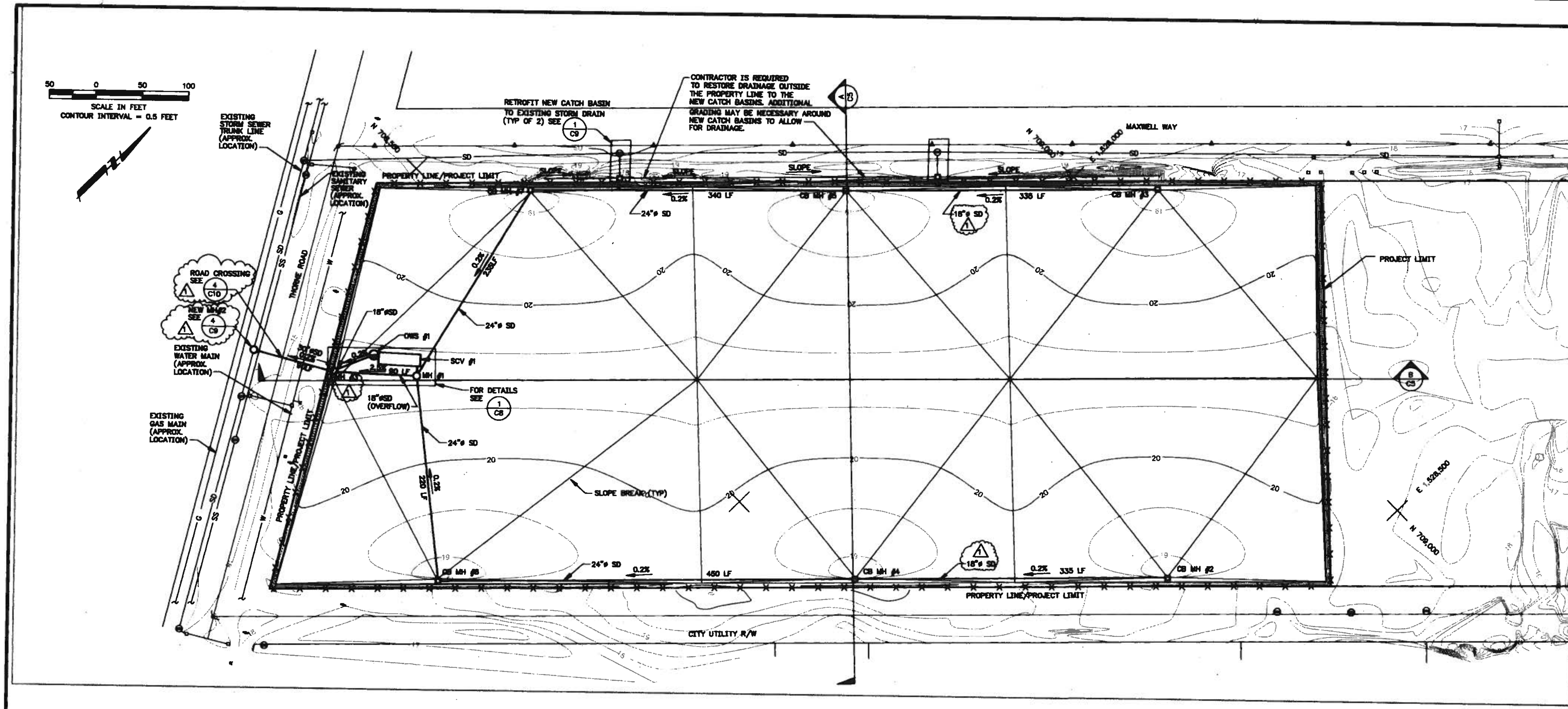
SEAL	APPROVED					
	CHIEF ENGINEER	4/22/94 DATE	JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
			AS-BUILT BY	DATE	MKD PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	4/94

CASCADE TIMBER REMEDIATION PROJECT

FINAL GRADING PLAN

AUTOCAD FILE NUMBER 507	C3
DRAWING NO. EP-4670-16	
CONTRACT NO. 730	
SHEET NO. 7 OF 14	



NOTES:

1. CONTOURS SHOWN WITHIN PROJECT LIMITS REFLECT FINAL GRADING. SEE SHEET C3 FOR FINAL GRADING PLAN.
2. ALL ELEVATIONS AND LENGTHS OF PIPE ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.
3. LOCATION OF ALL EXISTING UTILITIES SHOWN NEAR THE SITE SHOULD BE FIELD VERIFIED.
4. SOURCE OF TOPOGRAPHICAL INFORMATION: HCE CONSULTING ENGINEERS, PLANNERS, AND LAND SURVEYORS, DATED JANUARY 1992.
5. THE VERTICAL DATUM IS EQUAL TO THE CITY OF TACOMA DATUM ADJUSTED TO THE MEAN LOW LOW WATER (MLLW) DATUM (USGS).
6. HORIZONTAL DATUM IS PORT OF TACOMA STATE PLANE COORDINATES (NORTH AMERICAN DATUM, 1983).

△1 APPROXIMATE LOCATIONS OF EXISTING UTILITIES (SD, SS, W & G) WERE ADDED.

STORM DRAIN/ STRUCTURE NO.	STRUCTURE *TOP ELEV (FT)	30" DIA SD I.E.–IN (FT)	30" DIA SD I.E.–OUT (FT)	24" DIA SD I.E.–IN (FT)	24" DIA SD I.E.–OUT (FT)	18" DIA SD I.E.–IN (FT)	18" DIA SD I.E.–OUT (FT)	12" DIA SD I.E.–IN (FT)	12" DIA SD I.E.–OUT (FT)	NORTHING (TO CENTER OF STRUCTURE)	EASTING (TO CENTER OF STRUCTURE)
CB MH #2	18.7	–	–	–	–	–	15.5	–	–	N 708772.05	E 1528379.54
CB MH #3	18.7	–	–	–	–	–	15.5	–	–	N 709055.28	E 1528072.77
CB MH #4	18.7	–	–	–	14.8	14.9	–	–	–	N 708530.74	E 1528146.96
CB MH #5	18.7	–	–	–	14.8	14.9	–	–	–	N 708814.39	E 1527840.03
CB MH #6	18.7	–	–	14.0	13.9	–	–	–	–	N 708208.05	E 1527834.49
CB MH #7	18.7	–	–	14.1	14.0	–	–	–	–	N 708571.61	E 1527602.21
△1 MH #3	20.7	–	12.9	–	–	13.0,15.7**	–	–	–	N 708263.69	E 1527594.26
MH #1	20.7	–	–	13.5,13.5	–	–	13.4,18.0**	–	–	N 708345.07	E 1527660.27
MH #2	18.0	12.7	–	–	–	–	–	–	–	N 708239.08	E 1527517.99
SCV #1	20.8	–	–	–	–	13.3	13.2	–	–	N 708348.69	E 1527639.58
OWS #1	20.6	–	–	–	–	13.1	13.1	–	–	N 708338.93	E 1527621.86

* APPROX ** OVERFLOW

△1
1. TABLE REVISED
2. CBMH #1 AND THE 265 LF OF 12"ØSD WERE DELETED
3. CBMH #8 WAS CHANGED TO MH #3.

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APPROVED: CHIEF ENGINEER — DATE 4/22/94

JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MRD PROJ. ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
△1	ADDENDUM NO. 1	JSR	GSL	4/22/94

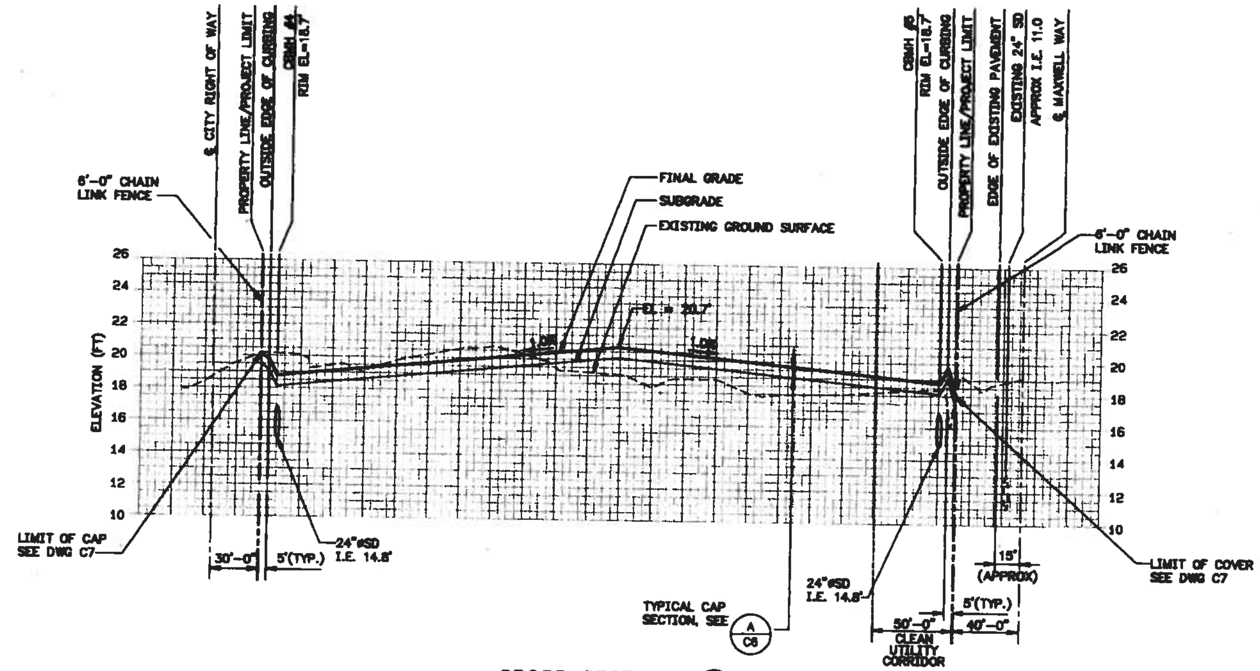
CASCADE TIMBER REMEDIATION PROJECT

DRAINAGE PLAN

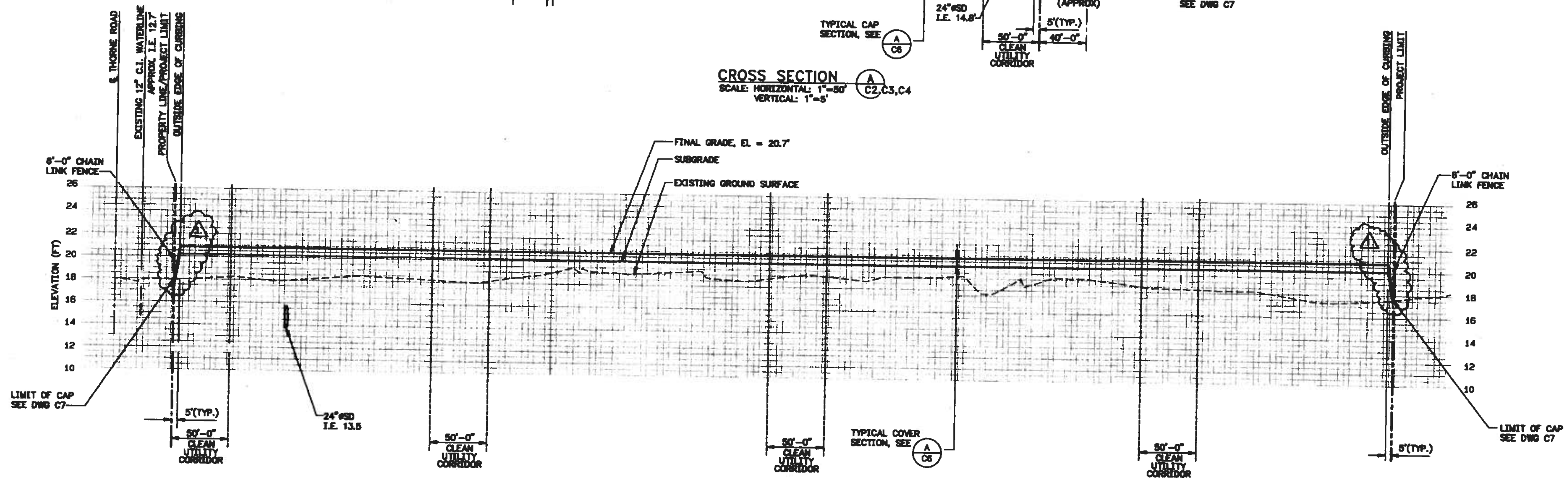
AUTOCAD FILE NUMBER 607

C4

DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 8 OF 14



CROSS SECTION (A) C2,C3,C4
SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



CROSS SECTION (B) C2,C3,C4
SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

⚠ APPROXIMATE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES (SD & W) WERE ADDED

NOTES:

1. VERTICAL DATUM IS M.L.L.W.
2. FOR PAVING SECTION TIE-IN DETAILS, SEE DWG C7.
3. FOR ELEVATIONS, SLOPES, AND INVERT ELEVATIONS OF THE DRAINAGE STRUCTURES, SEE DWG C4.
4. FOR LOCATION AND DEPTHS OF SLAG RELOCATION, SEE DWG C1.

GREGORY S. LAIRD — EXPIRES 5/07/95 — 4/12/94

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SEAL

APPROVED: [signature] CHIEF ENGINEER — DATE 4/22/94

DRAWN BY	DATE	CHECKED BY	DATE
JSR	4/94	GSL	4/94
AS-BUILT BY	DATE	PROJ.ENGR.	DATE
		MCD	4/94

MARK	REVISION	BY	APP.	DATE
⚠	ADDENDUM NO.1	JSR	GSL	5/13/94

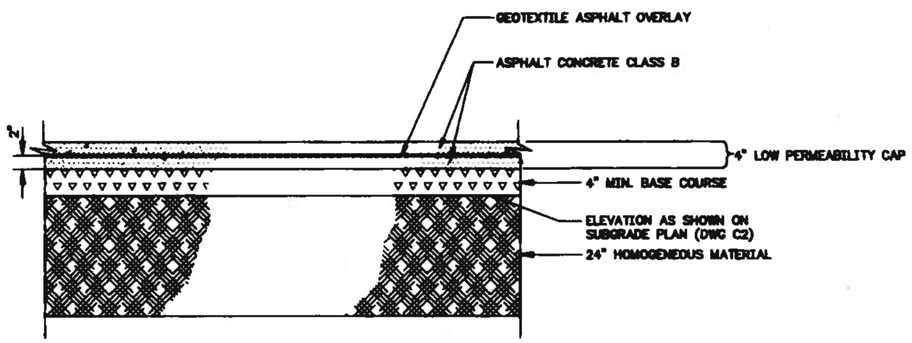
CASCADE TIMBER REMEDIATION PROJECT

CROSS SECTIONS

AUTOCAD FILE NUMBER 607

C5

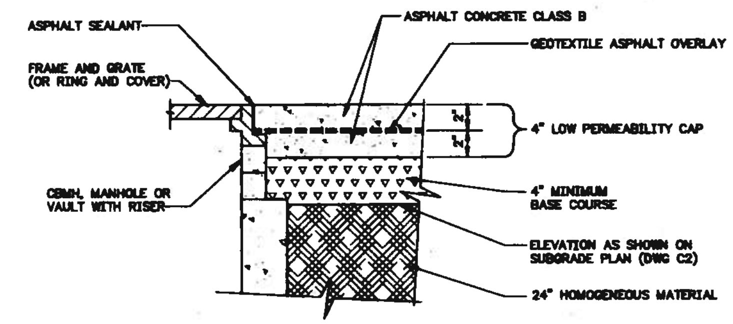
DRAWING NO. EP-4670-19
CONTRACT NO. 730
SHEET NO. 9 OF 14



LOW PERMEABILITY CAP SECTION

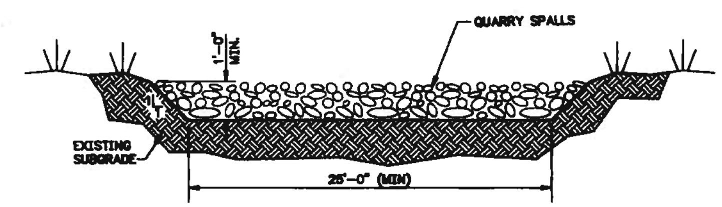
SECTION (A/-)
NOT TO SCALE

NOTES:
FOR SECTIONS A AND B THIS PAGE:
1. HOMOGENEOUS MATERIAL SHALL BE:
   A. CLEAN IMPORT MATERIAL IF LOCATED IN A CLEAN UTILITY CORRIDOR
   B. HOMOGENEOUS SOIL/BARK MIXTURE IF LOCATED ANYWHERE ELSE WITHIN THE PROJECT LIMITS



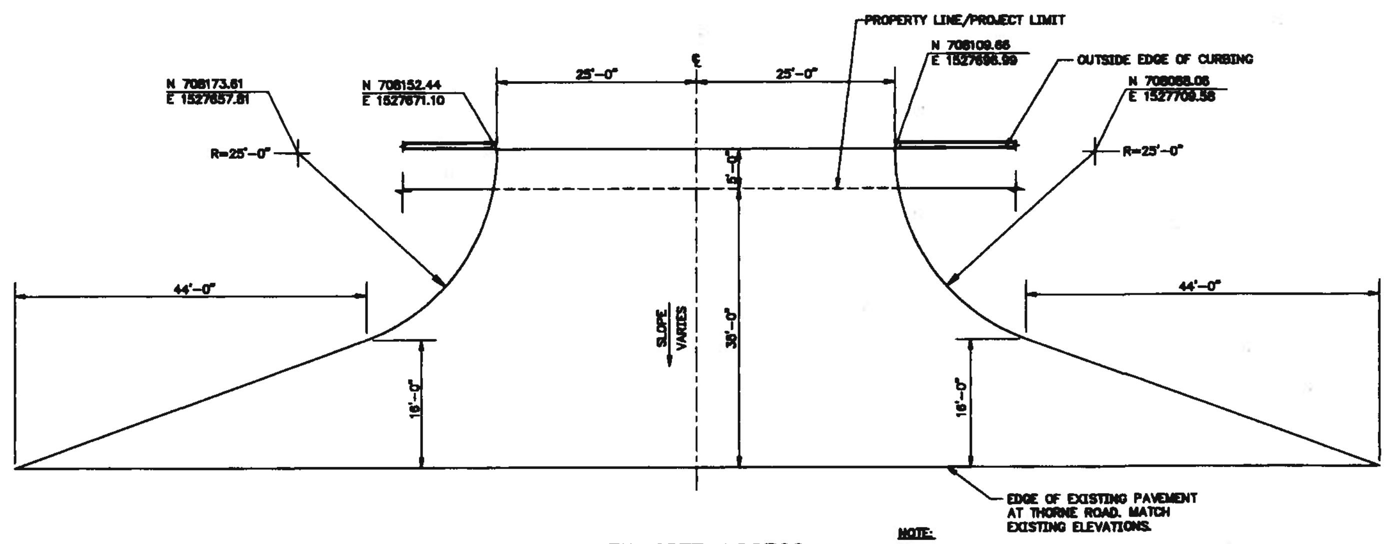
CAP PENETRATION

SECTION (B/TYP)
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE AND VEHICLE WASH AREA

SECTION (C/TYP)
NOT TO SCALE



NEW SITE ACCESS

DETAIL (1/C3)
NOT TO SCALE

NOTE:
1. ELEVATIONS ALONG OUTSIDE EDGE OF CURBING SHALL CORRESPOND WITH THE FINAL GRADING PLAN.
2. ACCESS SHALL BE 4 INCHES OF ASPHALT CONCRETE PAVEMENT OVER 4 INCHES OF BASE COURSE.

AUTOCAD FILE NUMBER 607 | C6

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HLA Harding Lawson Associates
Engineering and Environmental Services
1325 Fourth Avenue, Suite 1800
Phone (206) 622-0812
Fax (206) 292-8819

SEAL

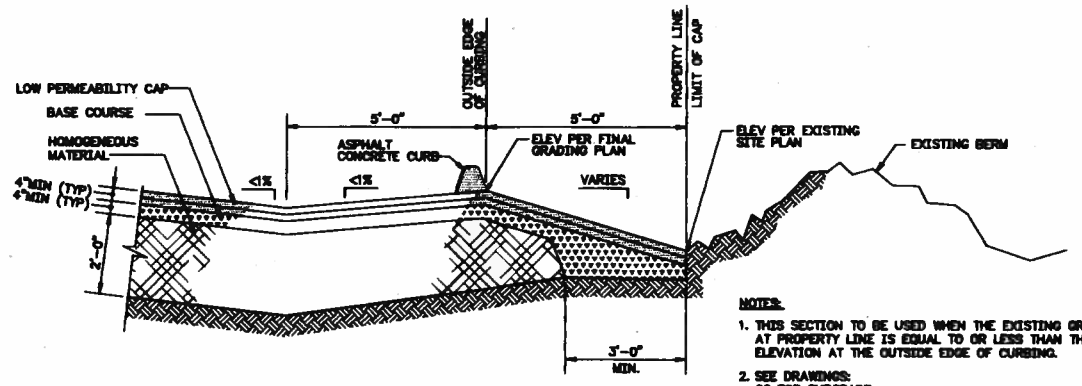
APPROVED
CHIEF ENGINEER DATE 4/22/94

JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MGD PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
A	ADDENDUM NO.1	JSR	GSL	4/22/94

CASCADE TIMBER REMEDIATION PROJECT
PAVEMENT DETAILS

DRAWING NO. EP-4670-16
CONTRACT NO. 730
SHEET NO. 10 OF 14



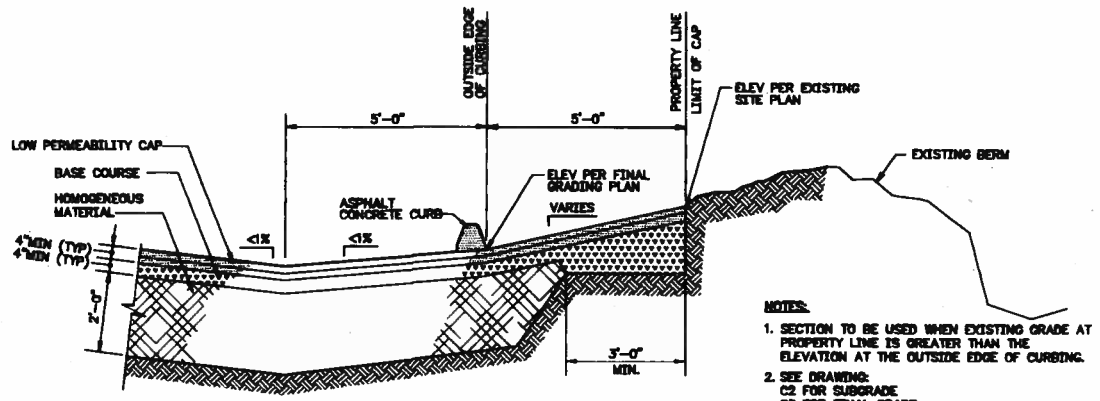
EDGE OF PAVEMENT TIE-IN

SECTION A / C3

NOT TO SCALE

NOTES:

1. THIS SECTION TO BE USED WHEN THE EXISTING GRADE AT PROPERTY LINE IS EQUAL TO OR LESS THAN THE ELEVATION AT THE OUTSIDE EDGE OF CURBING.
2. SEE DRAWINGS:
   C2 FOR SUBGRADE
   C3 FOR FINAL GRADE
3. NO WORK SHALL BE DONE OUTSIDE OF THE PROPERTY LINE/PROJECT LIMIT UNLESS DIRECTED BY THE ENGINEER. ANY DAMAGE OR DISTURBANCE OUTSIDE THE PROPERTY LINE/PROJECT LIMIT NOT DIRECTED BY THE ENGINEER SHALL BE RESTORED TO ORIGINAL CONDITIONS AT NO COST TO THE OWNER.
4. HOMOGENEOUS MATERIAL SHALL BE:
   A. CLEAN IMPORT MATERIAL IF LOCATED WITHIN A CLEAN UTILITY CORRIDOR.
   B. HOMOGENEOUS SOIL/BARK MIXTURE IF LOCATED ANYWHERE ELSE WITHIN THE PROJECT LIMITS.



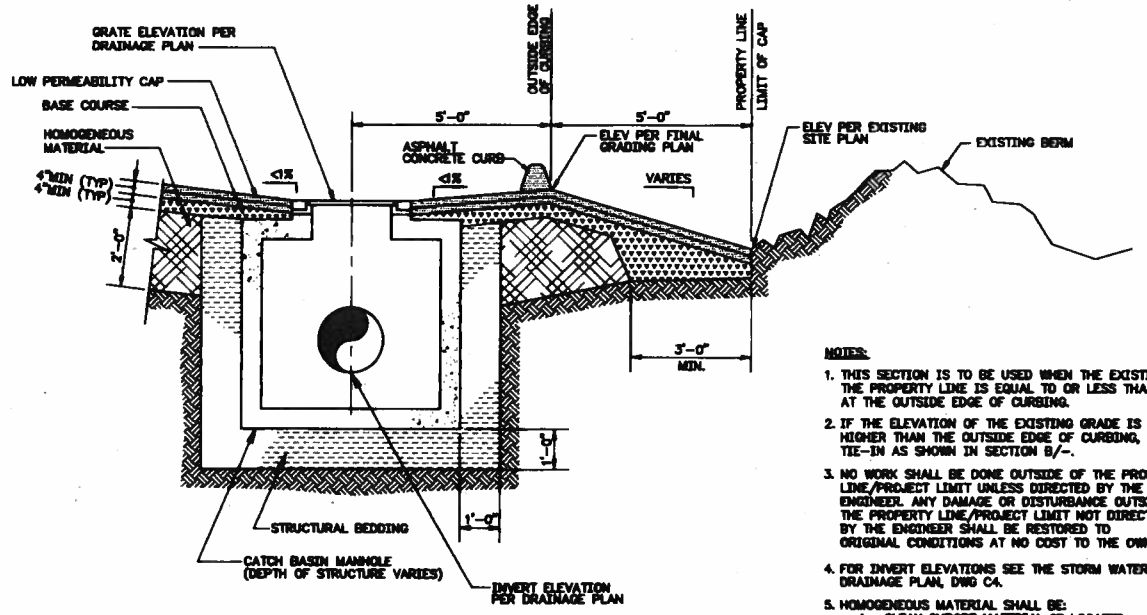
EASEMENT RIGHT OF WAY & EDGE OF PAVEMENT TIE-IN

SECTION B / C3

NOT TO SCALE

NOTES:

1. SECTION TO BE USED WHEN EXISTING GRADE AT PROPERTY LINE IS GREATER THAN THE ELEVATION AT THE OUTSIDE EDGE OF CURBING.
2. SEE DRAWING:
   C2 FOR SUBGRADE
   C3 FOR FINAL GRADE
3. NO WORK SHALL BE DONE OUTSIDE THE PROPERTY LINE/PROJECT LIMIT UNLESS DIRECTED OTHERWISE BY THE ENGINEER. ANY DAMAGE OR DISTURBANCE OUTSIDE OF THE PROPERTY LINE/PROJECT LIMIT NOT DIRECTED BY THE ENGINEER SHALL BE RESTORED TO THE ORIGINAL CONDITIONS AT NO COST TO THE OWNER.
4. THE CURB WILL BE OPENED A MINIMUM OF 24" IN ALIGNMENT WITH THE NEW CATCH BASINS. SEE DETAIL 1/-.
5. HOMOGENEOUS MATERIAL SHALL BE:
   A. CLEAN IMPORT MATERIAL IF LOCATED WITHIN A CLEAN UTILITY CORRIDOR.
   B. HOMOGENEOUS SOIL/BARK MIXTURE IF LOCATED ANYWHERE ELSE WITHIN THE PROJECT LIMITS.



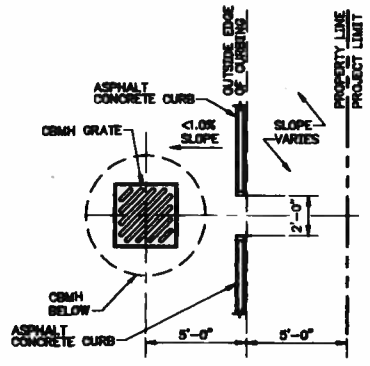
SECTION AT CATCH BASIN MANHOLE

SECTION C / C3

NOT TO SCALE

NOTES:

1. THIS SECTION IS TO BE USED WHEN THE EXISTING GRADE AT THE PROPERTY LINE IS EQUAL TO OR LESS THAN THE ELEVATION AT THE OUTSIDE EDGE OF CURBING.
2. IF THE ELEVATION OF THE EXISTING GRADE IS HIGHER THAN THE OUTSIDE EDGE OF CURBING, REVISE THE TIE-IN AS SHOWN IN SECTION B/-.
3. NO WORK SHALL BE DONE OUTSIDE OF THE PROPERTY LINE/PROJECT LIMIT UNLESS DIRECTED BY THE ENGINEER. ANY DAMAGE OR DISTURBANCE OUTSIDE THE PROPERTY LINE/PROJECT LIMIT NOT DIRECTED BY THE ENGINEER SHALL BE RESTORED TO ORIGINAL CONDITIONS AT NO COST TO THE OWNER.
4. FOR INVERT ELEVATIONS SEE THE STORM WATER DRAINAGE PLAN, DWG C4.
5. HOMOGENEOUS MATERIAL SHALL BE:
   A. CLEAN IMPORT MATERIAL IF LOCATED WITHIN A CLEAN UTILITY CORRIDOR.
   B. HOMOGENEOUS SOIL/BARK MIXTURE IF LOCATED ANYWHERE ELSE WITHIN THE PROJECT LIMITS.



CURB OPENING AT CATCH BASIN MANHOLE

DETAIL 1 / TYP

NOT TO SCALE

NOTE:

1. CURB OPENING TO BE PROVIDED ONLY WHEN EXISTING GRADE AT PROPERTY LINE IS GREATER THAN THE ELEVATION AT THE OUTSIDE EDGE OF CURBING.

GREGORY S. LAIRD — STATE OF WASHINGTON — 19978 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES JUNE 1995

4/2/94

AUTOCAD FILE NUMBER 507

C7

PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
(206) 383-5841

CONSULTANTS
HLA Hartling Lawson Associates
Engineering and Environmental Services
1325 Fourth Avenue, Suite 1800
Phone (206) 622-0812
Fax (206) 292-8910

SEAL

APPROVED
CHIEF ENGINEER — DATE 4/2/94

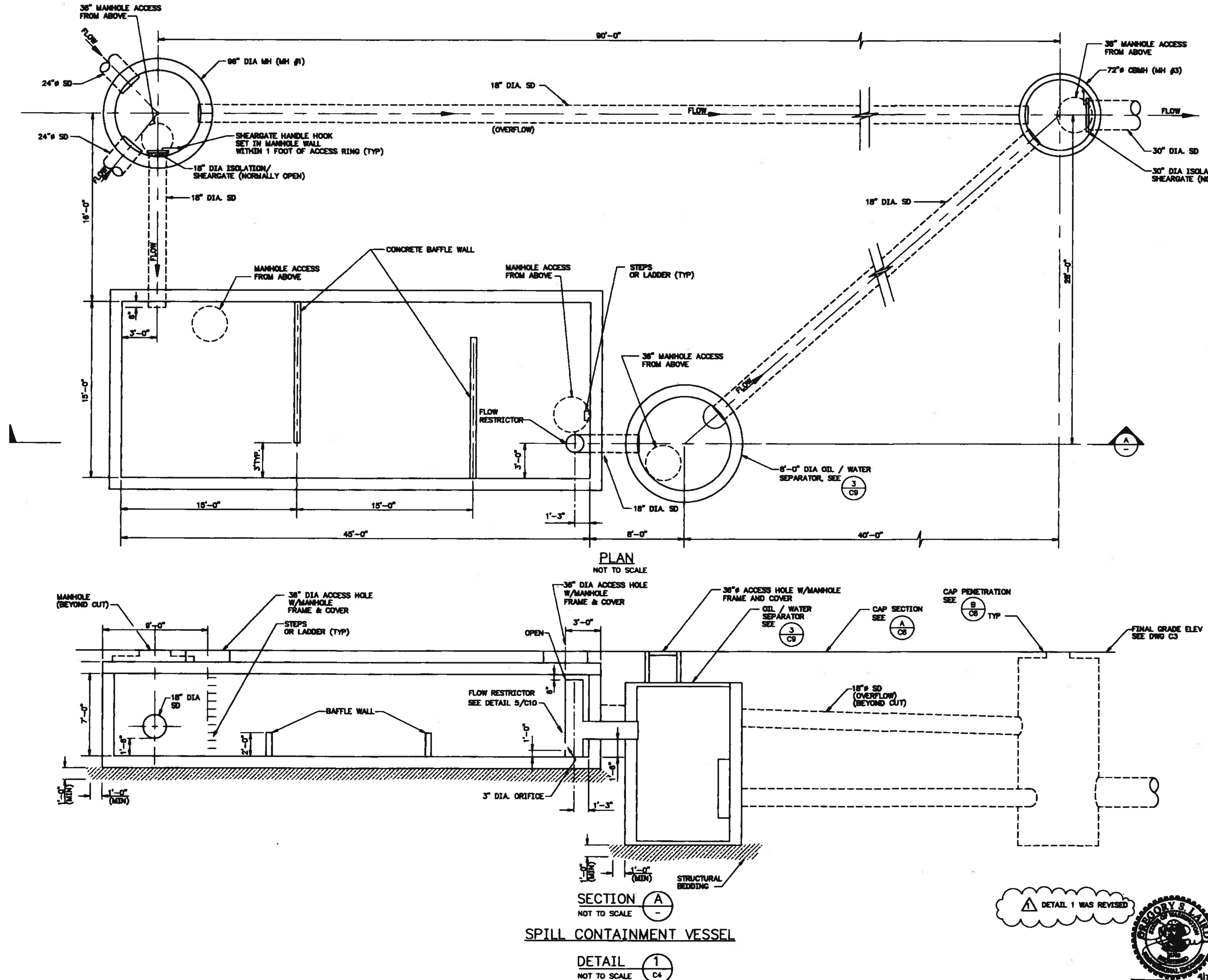
JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE		
AS-BUILT BY	DATE	MCD PROJ.ENGR.	4/94 DATE		

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	4/94

CASCADE TIMBER REMEDIATION PROJECT

PAVEMENT DETAILS

DRAWING NO. EP-4870-18
CONTRACT NO. 730
SHEET NO. 11 OF 14



NOTE:

1. SEE SCHEDULE ON DWG C4 FOR STORM DRAIN INVERT ELEVATIONS
2. THE DESIGN OF THE STRUCTURAL COMPONENT OF THE SPILL CONTAINMENT VESSEL IS THE RESPONSIBILITY OF THE CONTRACTOR.

EXPIRES MAY 1995

AUTOCAD FILE NUMBER 607 — C8

PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
(206) 383-5841

CONSULTANTS: HLA Harding Lawson Associates, Engineering and Environmental Services, 1325 Fourth Avenue, Suite 1800, Phone: (206) 622-0812, Fax: (206) 292-6619

SEAL

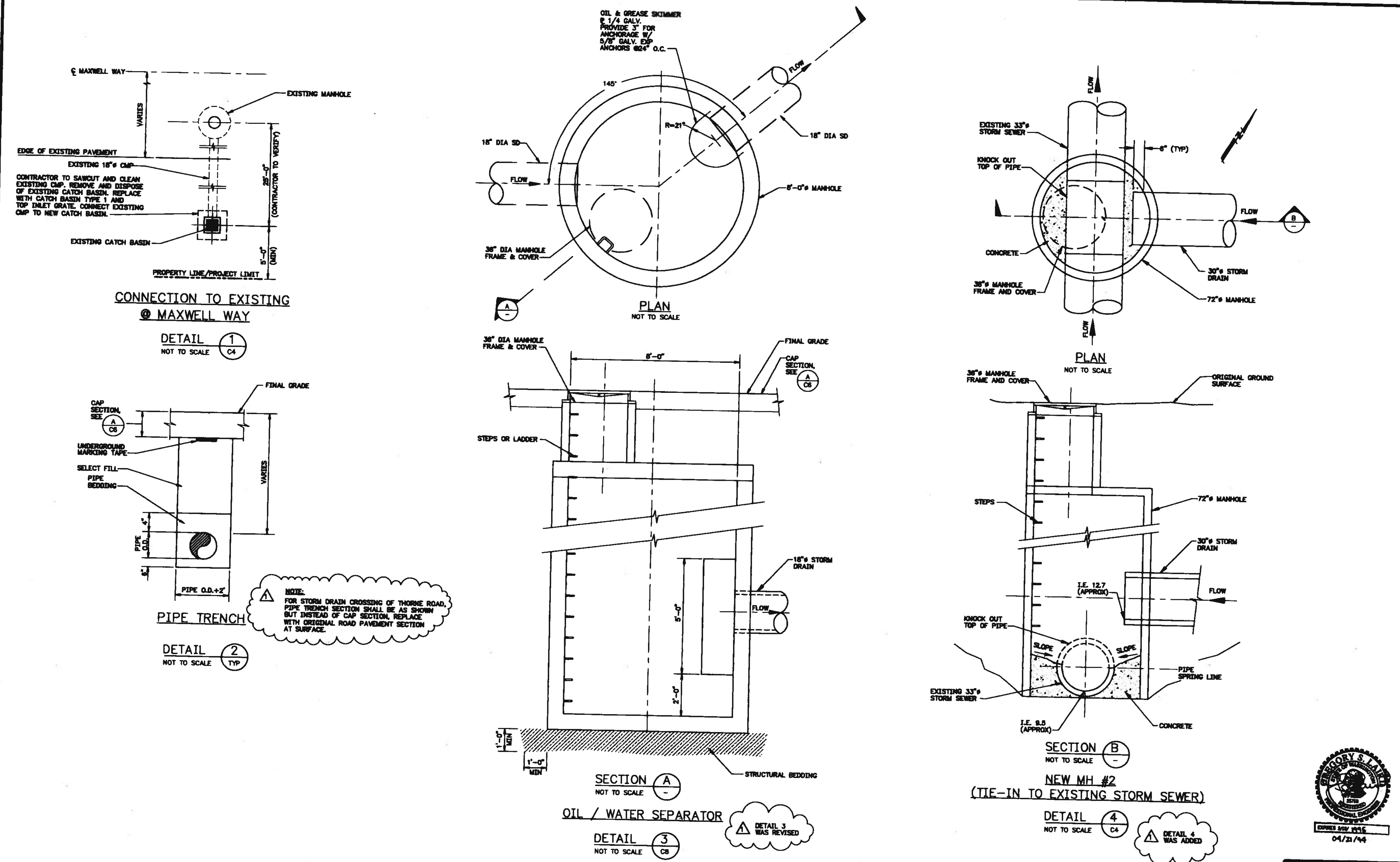
APPROVED: CHIEF ENGINEER — DATE 4/22/94

JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MCD PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	5/94

CASCADE TIMBER REMEDIATION PROJECT
DRAINAGE DETAILS

DRAWING NO. EP-4670-19
CONTRACT NO. 730
SHEET NO. 12 OF 14



PORT OF TACOMA
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SEAL

APPROVED
CHIEF ENGINEER 4/22/94 DATE

DRAWN BY JSR	4/94 DATE	CHECKED BY GSL	4/94 DATE
AS-BUILT BY	DATE	PROJ.ENGR. MCD	4/94 DATE

MARK	REVISION	BY	APP.	DATE
1	ADDENDUM NO.1	JSR	GSL	4/22/94

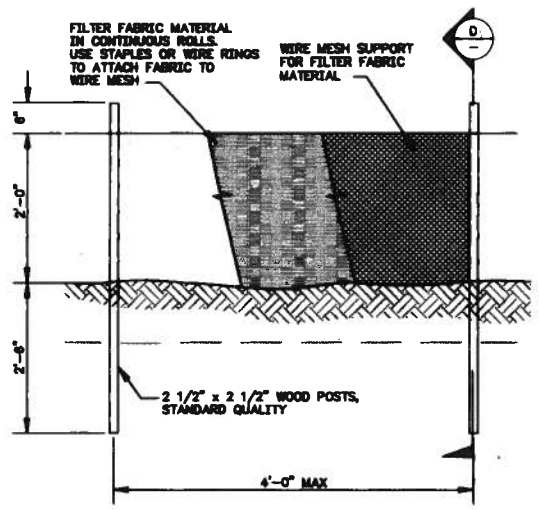
CASCADE TIMBER REMEDIATION PROJECT

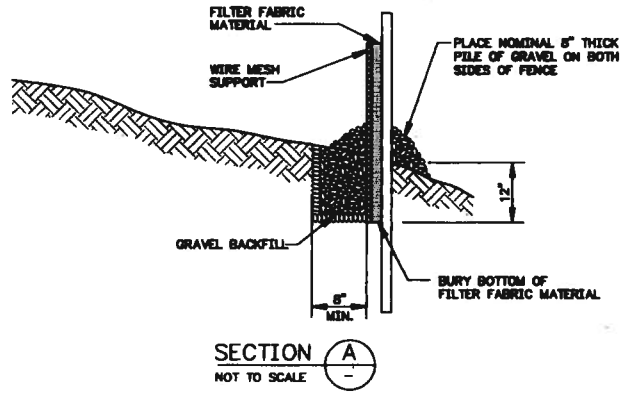
DRAINAGE DETAILS

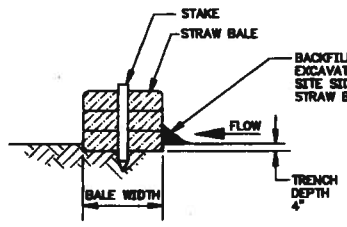
AUTOCAD FILE NUMBER 507

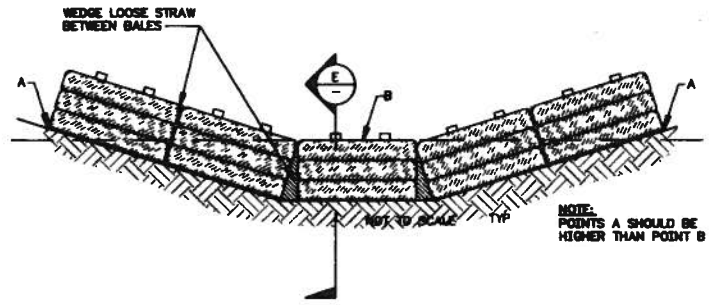
C9

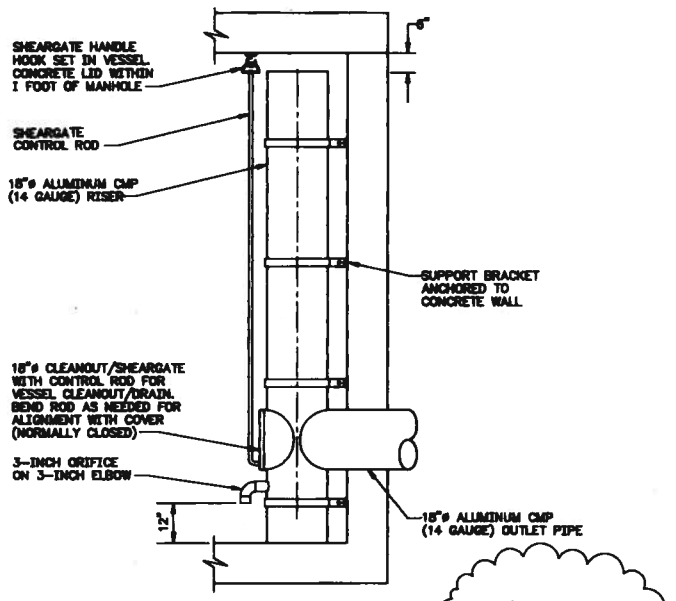
DRAWING NO. EP-4670-18
CONTRACT NO. 730
SHEET NO. 13 OF 14

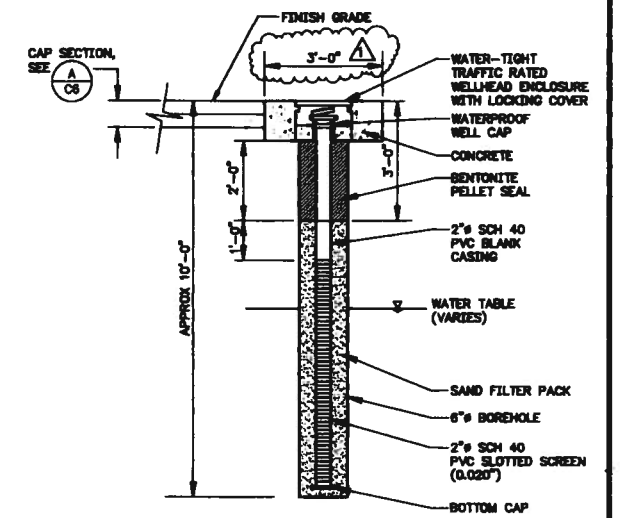


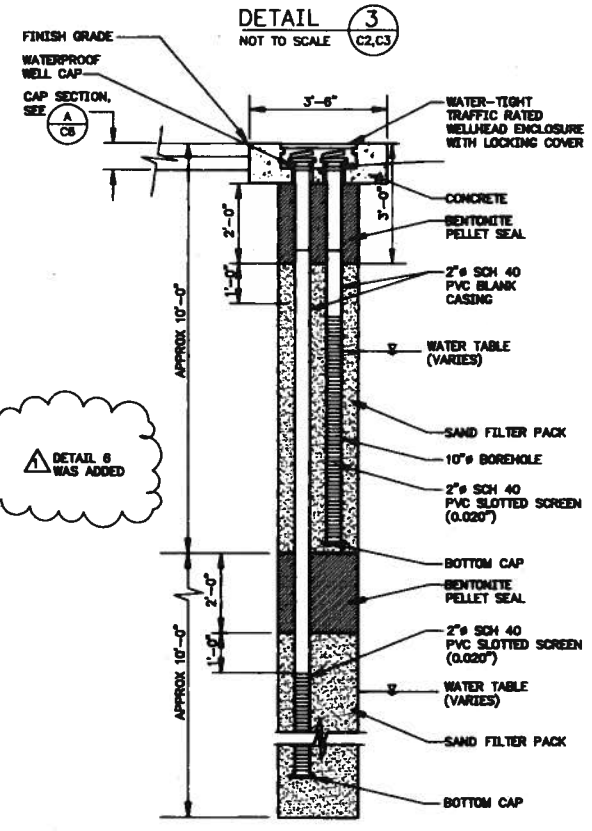












FILTER FABRIC FENCE INSTALLATION

NOT TO SCALE

SECTION (A/–)
NOT TO SCALE

DETAIL (1/TYP)
NOT TO SCALE

SECTION (E/–)
NOT TO SCALE

NOTE: POINTS A SHOULD BE HIGHER THAN POINT B

STRAW BALE BARRIER INSTALLATION

DETAIL (2)

FLOW RESTRICTOR

DETAIL (5/C8)
NOT TO SCALE

△1 DETAIL 5 WAS ADDED

NOTES:

1. METAL PARTS: CORROSION RESISITANT AS SPECIFIED; OTHERWISE GALVANIZED.
2. FRAME & LADDER OR STEPS OFFSET SO:
   A. CLEANOUT GATE IS VISIBLE FROM TOP
   B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
3. PROVIDE 3-3"x0.090 GAUGE SUPPORT BRACKETS ANCHORED TO CONCRETE WALL, 3 FOOT VERTICAL SPACING.
4. RISER PIPE SECTIONS MAY BE ASSEMBLED IN PLACE USING WATERTIGHT GASKETED BAND, WSDOT STANDARD PLAN B-13A.

NEW MONITOR WELL INSTALLATION (MW #1 & MW #2)

DETAIL (3/C2,C3)
NOT TO SCALE

THORNE ROAD CROSSING PROFILE

DETAIL (4/C4)
NOT TO SCALE

△1 DETAIL 4 WAS ADDED

NOTES:

1. VERTICAL DATUM IS M.L.L.W.
2. THE TYPICAL PIPE TRENCH SHALL BE SIMILAR TO DETAIL 2/C9.
3. ALL ELEVATIONS AND LENGTHS OF PIPE ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED.
4. CONTRACTOR IS REQUIRED TO RELOCATE EXISTING 12"ø WATER MAIN AS NECESSARY TO INSTALL THE 30"ø STORM DRAIN. SEE NOTE 5 BELOW.
5. THE CONTRACTOR IS REQUIRED TO COORDINATE ALL WORK ASSOCIATED WITH THE ADJUSTMENT OF WATER DIVISION UTILITIES WITH THE CITY OF TACOMA PUBLIC WORKS DEPT.

△1 DETAIL 6 WAS ADDED

NEW DUAL COMPLETION MONITOR WELL INSTALLATION (MW #3)

DETAIL (6/C2,C3)
NOT TO SCALE

GREGORY S. LAIRD
EXPIRES 3/31/ 1995
4|21|94

AUTOCAD FILE NUMBER 507

C10

PORT OF TACOMA
P.O. BOX 1837 TACOMA, WASHINGTON 98401
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SEAL

APPROVED
Wm L. Marquez 4/22/94
CHIEF ENGINEER DATE

JSR DRAWN BY	4/94 DATE	GSL CHECKED BY	4/94 DATE
AS-BUILT BY	DATE	MED PROJ.ENGR.	4/94 DATE

MARK	REVISION	BY	APP.	DATE
△1	ADDENDUM NO.1	JSR	GSL	4/22/94

CASCADE TIMBER REMEDIATION PROJECT

MISCELLANEOUS DETAILS

DRAWING NO. EP-4670-16
CONTRACT NO. 730
SHEET NO. 14 OF 14

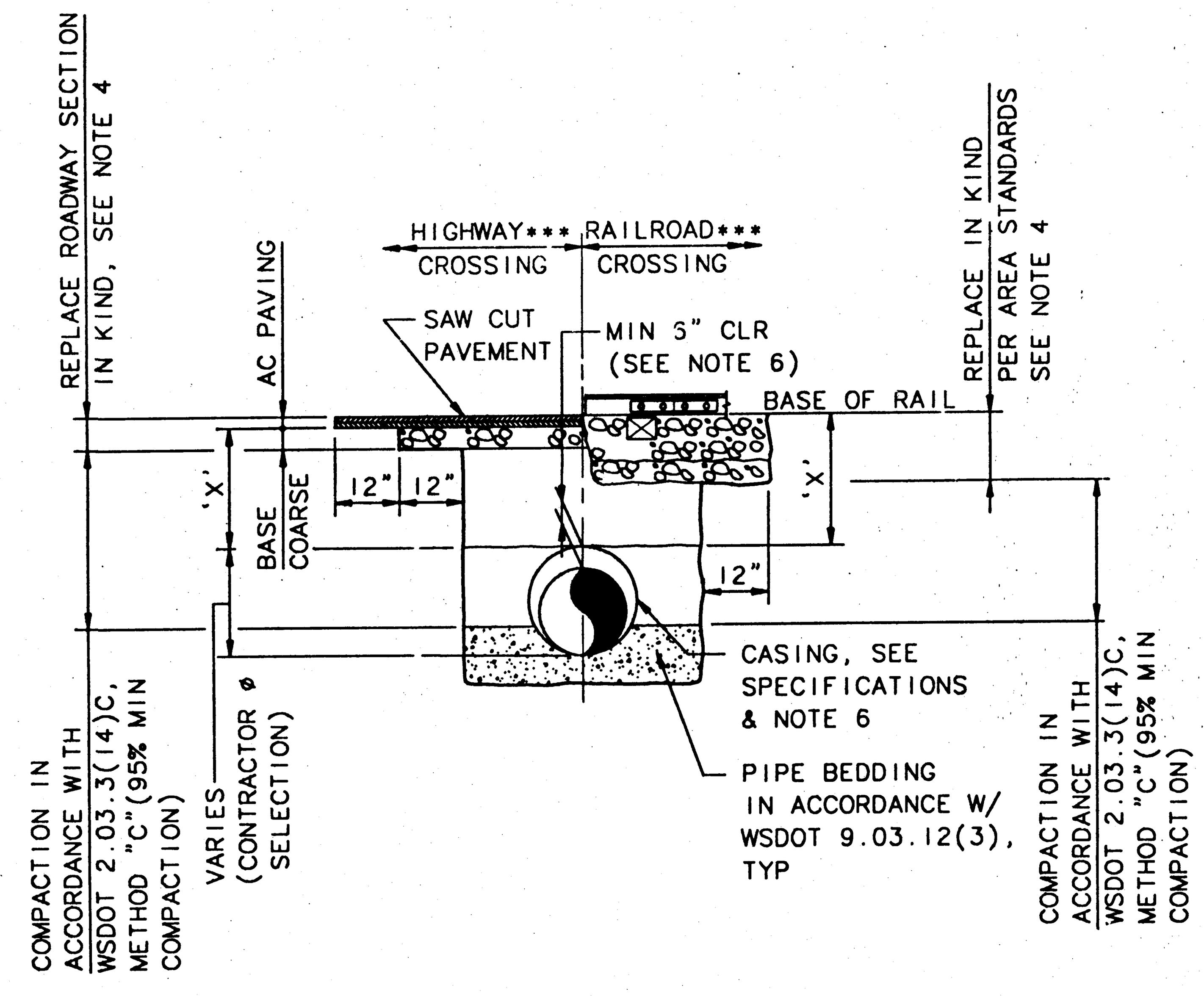
PLAN (1/C-23)
SCALE: 1" = 100'

VERTICAL DATUM SHOWN IS CITY OF TACOMA.
CITY DATUM 0.00 = CORPS OF ENGINEERS/
PORT OF TACOMA -7.22 MLLW.

PIPELINE UNDERCROSSING SCHEDULE (SEE NOTE 6)

LOCATION		MINIMUM CASING LENGTH*	MINIMUM DEPTH 'X'	UTILITY TYPE	APPROXIMATE I.E. ELEVATIONS
5+60±	GRAVEL LOT	40 LF	1'-6"	NONE KNOWN	–
7+70±	GRAVEL ROAD	40 LF	1'-6"	NONE KNOWN	–
15+93±	RAILROAD	20 LF	3'-0"	NONE KNOWN	–
21+90±	HIGHWAY	100 LF	2'-0"	ELEC. CABLE	UNKNOWN
				12"ø W.M.	20.4
				30"ø STM. S.	13.5
				18"ø S.S.	13.5
				6"ø H.D.GAS	UNKNOWN
				TEL. CABLE	UNKNOWN

* CASING LENGTH SHOWN IS MINIMUM FOR THE MINIMUM DEPTH OF COVER SHOWN. ADDITIONAL LENGTHS, TO BE DETERMINED BY THE CONTRACTOR, MAY BE REQUIRED DEPENDING ON THE ACTUAL DEPTH OF INSTALLATION.



*** AT RAILROAD UNDERCROSSINGS THE ENDS OF THE CASING PIPES SHALL BE A MINIMUM OF 10' EACH SIDE OF ℄ TRACK. AT ROADWAY/HIGHWAY UNDERCROSSINGS THE CASING PIPE LENGTHS SHOWN SHALL BE CENTERED ON THE PAVED ROADWAY SECTION.

SECTION – PIPELINE UNDERCROSSINGS (2/C-23)
SCALE: 1/2" = 1'-0"
(OPEN CUT METHOD), SEE NOTE 6

NOTES :

1. FLASHING YELLOW LIGHTS SHALL BE INSTALLED ON THE PIPELINES AT 150 FT INTERVALS (MAXIMUM) LIGHTS SHALL MEET THE REQUIREMENTS OF THE CITY OF TACOMA TRAFFIC DEPARTMENT.

2. EXISTING UTILITIES, PAVEMENT WIDTHS, R/W LINES ETC. HAVE BEEN SHOWN HERE FROM INFORMATION OBTAINED ON THE FOLLOWING CITY OF TACOMA PUBLIC UTILITIES DWGS. DWG NOS. 14-7-1, IMP 3123 SHTS 9 & 10, 10-62-2, IMP 4875 SHTS 6, 7, 8, 14 & 15, IMP 3722 SHT 3, IMP 8049 SHTS 7 & 8. DISTANCE & STATIONING SHOWN ARE APPROXIMATE AND SHOULD ONLY BE USED AS A GENERAL GUIDE. FOR ACTUAL FIELD MEASUREMENTS & LOCATION OF UNDERGROUND UTILITIES IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SURFACE FEATURES & UNDERGROUND UTILITIES PRIOR TO BIDDING; FAILURE TO DO SO WILL NOT BE GROUNDS FOR CHANGES ONCE THE CONTRACT IS AWARDED.

3. U.S. OIL CO. PIPELINES AND 25' EASEMENT SHOWN PER U.S. OIL CO. DWG D-X-207B AND CITY OF TACOMA DWG IMP 4875 SHT 7.

4. ROADWAYS AND RAILROADS SHALL BE RESTORED TO THEIR ORIGINAL UNDISTURBED CONDITION. REUSE OF EXCAVATED MATERIALS MAY BE ALLOWED IF THEY ARE NOT FOULED OR CONTANMINATED. REUSE OF EXISTING MATERIALS WILL REQUIRE CITY OF TACOMA/PORT OF TACOMA INSPECTION & APPROVAL PRIOR TO RE-INSTALLATION.

5. PRIOR TO EXCAVATING ANY LOCATION, FOR PIPELINE UNDERCROSSINGS, THE CONTRACTOR SHALL CONTACT THE BURIED CABLE LOCATION SERVICE AT 1-800-424-5555 FOR ALL PUBLIC RIGHTS OF WAY AND 383-5841 ENGINEERING DEPT. FOR PORT OF TACOMA RIGHTS OF WAY.

6. CASING PIPE SIZE AND THICKNESS SHALL BE DESIGNED BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE CASING SIZE SELECTED CAN BE INSTALLED BETWEEN THE EXISTING UNDERGROUND UTILITIES.
FIELD VERIFICATION OF UTILITY LOCATIONS AND NOTIFICATION/COORDINATION WITH PRIVATE COMPANYS UTILITIES & MUNICIPALITIES PRIOR TO INSTALLATION OF SURFACE, OR UNDERGROUND DREDGE LINES IS THE CONTRACTORS RESPONSIBILITY.
ALTERNATE INSTALLATION METHODS WILL BE CONSIDERED PROVIDED THE CONTRACTOR SUBMITS FULL DETAILS TO THE PORT OF TACOMA FOR REVIEW & APPROVAL. THE PORT'S DECISION ON PROPOSED ALTERNATES WILL BE FINAL.
△1 CASING PIPES SHALL BE COMPLETELY REMOVED AT THE COMPLETION OF THE PROJECT AND A PERMANENT PATCH SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF TACOMA STANDARDS. THE MINIMUM SECTION ALLOWABLE SHALL BE 3 INCHES OF ASPHALT OVER 2 1/2 INCHES OF CRUSHED SURFACING TOP COARSE OVER COMPACTED TRENCH BACKFILL.

7. WHERE REQUIRED BY THE CITY OF TACOMA, ROADWAY CROSSING SHALL BE DONE ONE HALF AT A TIME TO ALLOW TRAFFIC FLOW TO CONTINUE DURING CONSTRUCTION OF THE UNDERCROSSING.

1"=100' scale 100 0 100 200 feet

AS-BUILT R-1 C-23

ABAM CONSULTING ENGINEERS
33301 9TH AVE. SOUTH
FEDERAL WAY, WASHINGTON 98003
(206) 952-6100
A MEMBER OF THE BERGER GROUP

PORT OF TACOMA
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(206) 383-5841

HARTMAN ASSOCIATES
810 3rd AVENUE, SUITE 408
SEATTLE, WASHINGTON 98104
FAX: (206) 382-0268
(206) 382-0388

RONALD E. WILLS, STATE OF WASHINGTON, 28736, REGISTERED PROFESSIONAL ENGINEER, EXPIRES APRIL 10, 1995

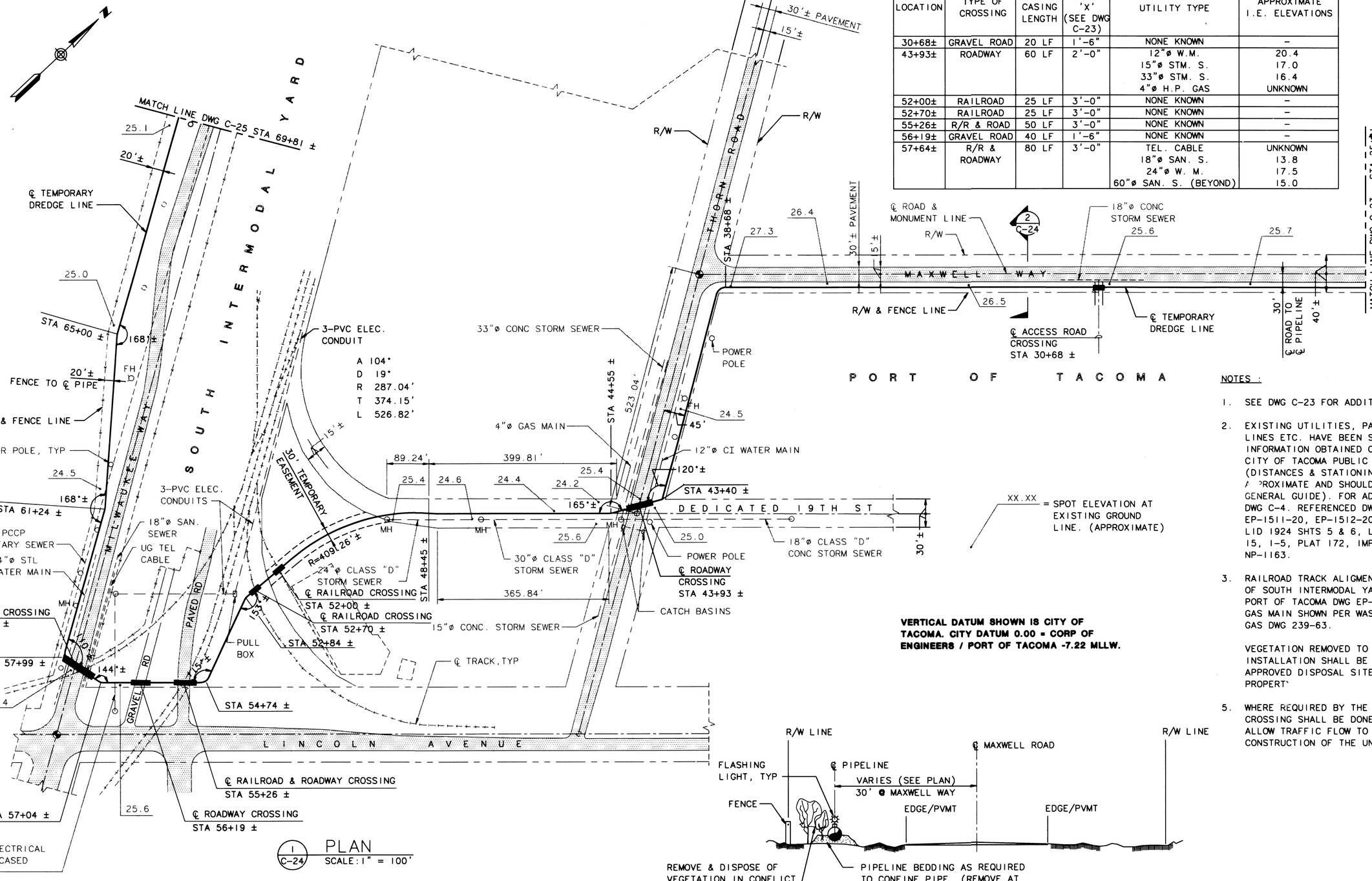
APPROVED		DRAWN BY	DATE	CHECK BY	DATE
		JTB	1/20/93	BCM	4/7/93
CHIEF ENGINEER	DATE 5-24-93	DESIGN BY RDD	1/8/93	PROJ ENGR RDD	4/7/93

MARK	REVISION	BY	APP.	DATE
△1	ADDENDUM 1 REVISIONS	RDD	BCM	5/24/93

SITCUM WATERWAY REMEDIATION PROJECT
DREDGING
BLAIR PIPELINE PLAN – SHEET 1

DRAWING NO. EP-4537-23
CONTRACT NO. 698
SHEET NO. 27 OF 49

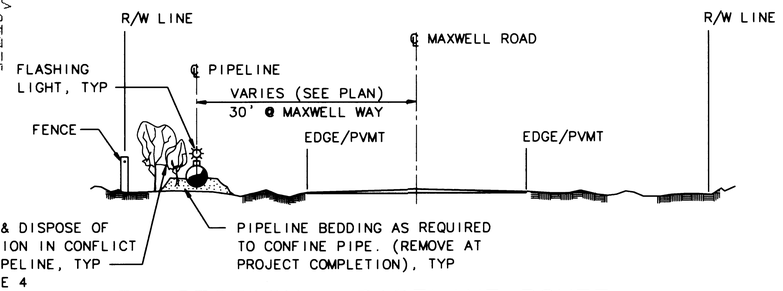
PIPELINE UNDERCROSSING SCHEDULE (SEE NOTE 6 DWG C-23)					
LOCATION	TYPE OF CROSSING	MINIMUM CASING LENGTH	MINIMUM DEPTH 'X' (SEE DWG C-23)	UTILITY TYPE	APPROXIMATE I.E. ELEVATIONS
30+68±	GRAVEL ROAD	20 LF	1'-6"	NONE KNOWN	–
43+93±	ROADWAY	60 LF	2'-0"	12"ø W.M. 15"ø STM. S. 33"ø STM. S. 4"ø H.P. GAS	20.4 17.0 16.4 UNKNOWN
52+00±	RAILROAD	25 LF	3'-0"	NONE KNOWN	–
52+70±	RAILROAD	25 LF	3'-0"	NONE KNOWN	–
55+26±	R/R & ROAD	50 LF	3'-0"	NONE KNOWN	–
56+19±	GRAVEL ROAD	40 LF	1'-6"	NONE KNOWN	–
57+64±	R/R & ROADWAY	80 LF	3'-0"	TEL. CABLE 18"ø SAN. S. 24"ø W. M. 60"ø SAN. S. (BEYOND)	UNKNOWN 13.8 17.5 15.0



1 C-24 PLAN
SCALE: 1" = 100'

XX.XX = SPOT ELEVATION AT EXISTING GROUND LINE. (APPROXIMATE)

VERTICAL DATUM SHOWN IS CITY OF TACOMA. CITY DATUM 0.00 = CORP OF ENGINEERS / PORT OF TACOMA -7.22 MLLW.



2 C-24 SECTION – PIPELINE ROUTE
SCALE: 1" = 10'

NOTES :

1. SEE DWG C-23 FOR ADDITIONAL NOTES.
2. EXISTING UTILITIES, PAVEMENT WIDTHS, R/W LINES ETC. HAVE BEEN SHOWN HERE FROM INFORMATION OBTAINED ON THE FOLLOWING CITY OF TACOMA PUBLIC UTILITIES DWGS. (DISTANCES & STATIONING SHOWN ARE APPROXIMATE AND SHOULD ONLY BE USED AS A GENERAL GUIDE). FOR ADDITIONAL NOTES SEE DWG C-4. REFERENCED DWG NO'S. IMP 8049, EP-1511-20, EP-1512-20 SHTS 7 & 8, LID 1924 SHTS 5 & 6, LID 3722 SHTS, 14 & 15, 1-5, PLAT 172, IMP DC 1703 UNIT A, NP-1163.
3. RAILROAD TRACK ALIGMENTS NEAR SOUTH END OF SOUTH INTERMODAL YARD ARE SCALED FROM PORT OF TACOMA DWG EP-4333-20-C6. GAS MAIN SHOWN PER WASHINGTON NATURAL GAS DWG 239-63.

   VEGETATION REMOVED TO FACILITATE PIPELINE INSTALLATION SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL SITE OFF PORT OF TACOMA PROPERTY
5. WHERE REQUIRED BY THE CITY OF TACOMA, ROADWAY CROSSING SHALL BE DONE ONE HALF AT A TIME TO ALLOW TRAFFIC FLOW TO CONTINUE DURING CONSTRUCTION OF THE UNDERCROSSINGS

1"=100' scale 100 0 100 200 feet

AS-BUILT R-2 C-24

ABAM CONSULTING ENGINEERS
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(206) 952-6100
A MEMBER OF THE BERGER GROUP

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HARTMAN ASSOCIATES
810 3rd AVENUE, SUITE 408
SEATTLE, WASHINGTON 98104
FAX: (206) 382-0268
(206) 382-0388

GREGORY LEROY HARTMAN STATE OF WASHINGTON 20644 REGISTERED PROFESSIONAL ENGINEER
EXPIRES JUNE 22, 1993

APPROVED
CHIEF ENGINEER 4.8.93 DATE

JTB DRAWN BY	1/20/93 DATE	BCM CHECK BY	4/7/93 DATE		
RDD DESIGN BY	1/8/93 DATE	RDD PROJ ENGR	4/7/93 DATE		

MARK	REVISION	BY	APP.	DATE

SITCUM WATERWAY REMEDIATION PROJECT
DREDGING
BLAIR PIPELINE PLAN – SHEET 2

DRAWING NO. EP-4537-23
CONTRACT NO. 698
SHEET NO. 28 OF 49

PLOTTED: Wed Apr 07 1993 7:51am FILENAME: F:\491082\C-24.DWG SCALE: 1200

FILE NUMBER:

PORT OF TACOMA U.S.A.

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 253-383-5841

HULTZ ▪ BHU ▪ CROSS
consulting engineers, inc.
2407 North 31st Street
Tacoma, WA 98407 – (253) 759-0118

MARK	REVISION	BY:	APPROVED:	DATE:

REGISTERED PROFESSIONAL ENGINEER — JACQUELINE J. CROSS — STATE OF WASHINGTON — 4-09-03

EXPIRES: NOVEMBER 26, 2004

APPROVED

CHIEF ENGINEER – DATE 10 April 03

CHECKED BY – DATE

PROJECT ENGR.– DATE

DRAWING DATE: 4/7/03
PORT ADDRESS: 1800 PORT OF TACOMA ROAD
PORT PARCEL: 30

MARSHALL AVE. AUTO FACILITY
MAXWELL WAY SITE
ELECTRICAL SITE PLAN

TOWNSHIP: 21N RANGE: 3E SECTION: 34–35
DATUM: HORIZ: NAD 83/91 VERT: MLLW
DRAWING SCALE:

EP-5574-20
E1
SHEET 13 OF 17

CONTRACT NUMBER: 998147
E NUMBER: 2157
PHASE: FINAL

GENERAL NOTES:

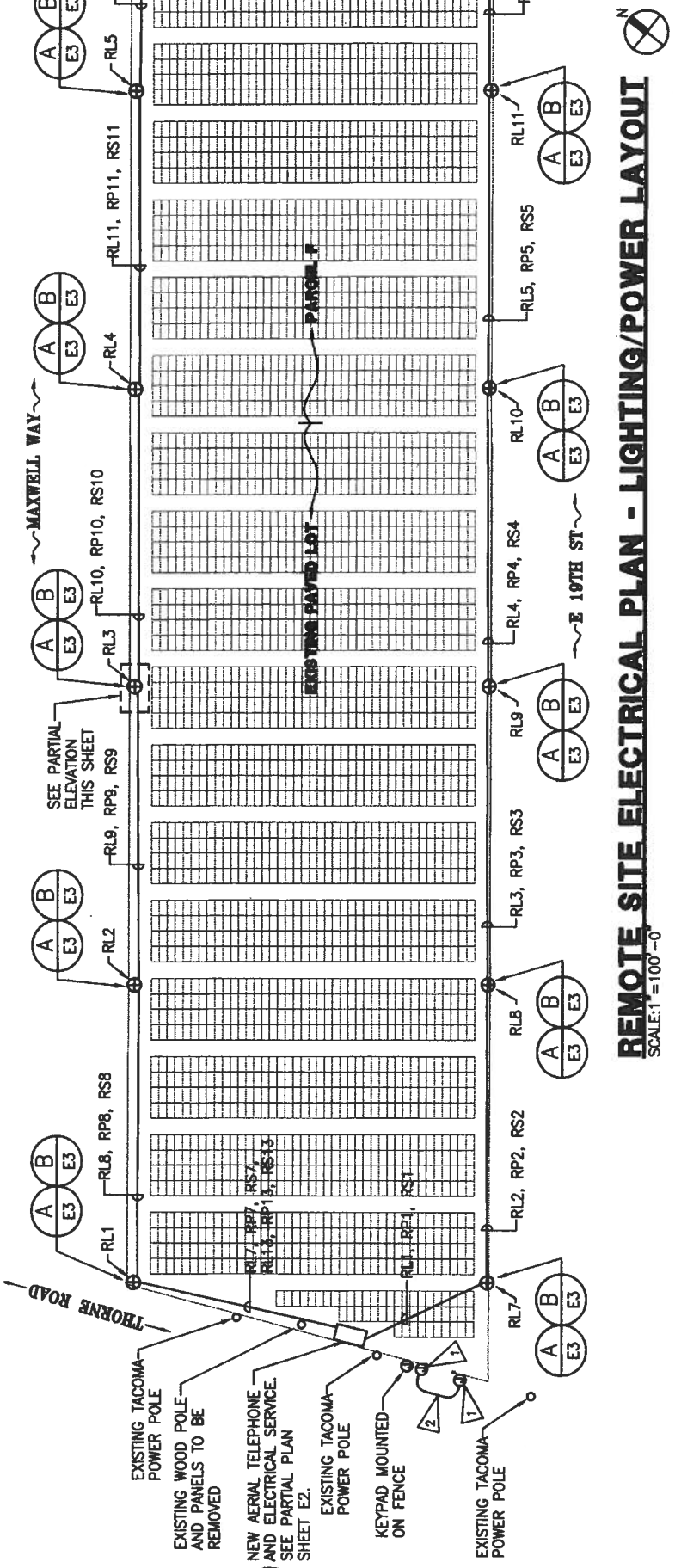
1. REFER TO ELECTRICAL DRAWINGS FOR EXACT LOCATION OF ALL LIGHT POLES AND EQUIPMENT. DO NOT SCALE ELECTRICAL DRAWINGS.
2. THERE IS ADDITIONAL DEMOLITION AND NEW ELECTRICAL WORK SHOWN ON THE CIVIL DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS. CONTRACTOR SHALL REVIEW ALL DRAWINGS, SPECIFICATION SECTIONS AND INCLUDE ALL WORK IN BID.
3. SEE SHEET E2 FOR CONDUIT AND CONDUCTOR SCHEDULE. COUPLINGS AND JOINTS OF CONDUITS EMBEDDED IN CONCRETE SHALL BE TAPED OR OTHERWISE MADE WATERTIGHT TO PREVENT INTRUSION OF MORTAR OR OTHER OBSTRUCTIONS. TEST CONDUIT FOR ABSENCE OF ANY BLOCKAGE WITHIN 24 HOURS OF COMPLETING THE CONCRETE POUR.
4. CONTRACTOR SHALL INCLUDE IN THE BID, COST FOR LIGHTING CONTROL COMMISSIONING. CONTRACTOR SHALL PROVIDE THE OWNER A COMPLETE REPORT OF TEST PROCEDURES AND RESULTS INDICATING ALL LIGHTING CONTROLS HAVE BEEN TESTED, ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS PER THE TACOMA ENERGY CODE, SECTION 15317.7.
5. CONTRACTOR SHALL CONTACT TACOMA POWER, QWEST AND CLICK TO PROVIDE THEIR SERVICES TO THE SITE. INCLUDE COSTS FOR THESE SERVICES IN THE BID.

ELECTRICAL NOTES:

1. PROVIDE 8" X 8" X 4" CAST PULL BOX WITH SCREW COVER SECURELY MOUNTED TO THE FENCE. PROVIDE WITH TAMPERPROOF STAINLESS STEEL SCREWS. COORDINATE EXACT LOCATION WITH SECURITY CONTRACTOR.
2. PROVIDE 1" SCHEDULE 80 PVC CONDUIT BETWEEN PULL BOXES LOCATED ON EITHER SIDE OF ENTRY GATE. COORDINATE EXACT LOCATION WITH SECURITY CONTRACTOR.

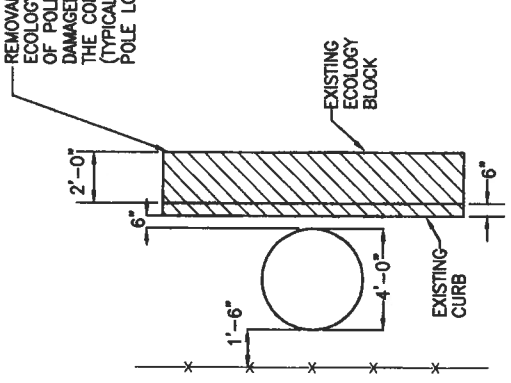
LIGHT POLE LOCATIONS

LIGHT POLE	NORTHING	EASTING
RL1	708404.3	1167608.9
RL2	708661.9	1167858.6
RL3	708920.6	1168108.7
RL4	709178.0	1168358.2
RL5	709436.4	1168608.7
RL6	709691.2	1168857.2
RL7	708105.8	1167917.5
RL8	708363.1	1168166.9
RL9	708621.0	1168417.5
RL10	708879.6	1168667.5
RL11	709137.2	1168917.3
RL12	709392.8	1169164.7



REMOTE SITE ELECTRICAL PLAN - LIGHTING/POWER LAYOUT

SCALE: 1"=100'-0"



PARTIAL ELEVATION PLAN

SCALE: NOT TO SCALE

FILE NUMBER:

PORT OF TACOMA U.S.A.

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 253-383-5841

HULTZ ▪ BHU ▪ CROSS
consulting engineers, inc.
2407 North 31st Street
Tacoma, WA 98407 – (253) 756-0118

MARK	REVISION	BY:	APPROVED:	DATE:

JACOB J. CROSS — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 4-08-03
EXPIRES: NOVEMBER 26, 2004

APPROVED
CHIEF ENGINEER – DATE 10 Apr 03

CHECKED BY – DATE

PROJECT ENGR.– DATE

DRAWING DATE: 4/7/03
PORT ADDRESS: 1800 PORT OF TACOMA ROAD
PORT PARCEL: 30

MARSHALL AVE. AUTO FACILITY
MAXWELL WAY SITE
POWER RISER AND SCHEDULES

TOWNSHIP: 21N RANGE: 3E SECTION: 34–35
DATUM: HORIZ: NAD 83/91 VERT: MLLW
DRAWING SCALE:

EP-5574-20
E2
SHEET 14 OF 17

CONTRACT NUMBER: 998147
E NUMBER: 2157
PHASE: FINAL

GENERAL NOTES:

1. ALL CONDUCTORS SHALL BE COPPER.
2. ALL BELOW GRADE CONDUIT SHALL BE SCHEDULE 80. ALL ABOVE GRADE CONDUIT SHALL BE RIGID GALVANIZED STEEL.

ELECTRICAL NOTES:

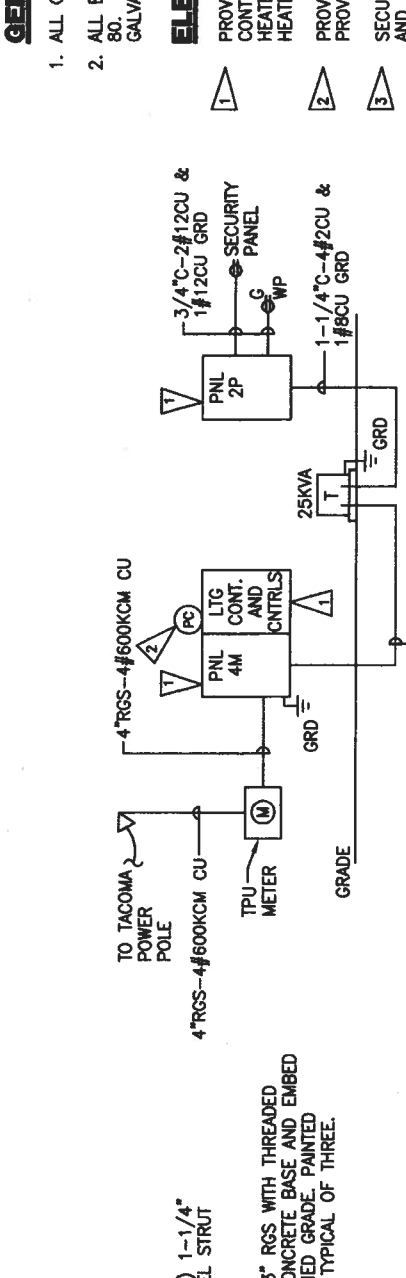
1. PROVIDE 250W HEATER INTEGRAL TO PANEL. PROVIDE LINE VOLTAGE CONTROL THERMOSTAT AT PANEL 2P SET AT 40°F TO CONTROL ALL HEATERS. PROVIDE 3/4"C–2#12CU & 1#12 CU GRD BETWEEN HEATERS AND THERMOSTAT.
2. PROVIDE PHOTOCELL MOUNTED ON LIGHTING CONTROL PANEL FACING NORTH. PROVIDE CONTROL WIRES TO CONTROL ALL LIGHTING CONTACTORS.
3. SECURITY PANEL CONSTRUCTION SHALL BE SIMILAR TO LIGHTING CONTACTORS AND CONTROL PANEL. SEE SHEET E5.

LEGEND:

RL = REMOTE SITE LIGHTS
RP = REMOTE SITE POWER
RS = REMOTE SITE SECURITY
NUMBERING = INDIVIDUAL CONDUIT IDENTIFICATION

NOTES:

① PVC SCHEDULE 80.
② RGS CONDUIT.
③ STUB CONDUIT 10' PAST(NORTH) POLE RL1 AND CAP FOR FUTURE USE.



POWER RISER DIAGRAM

SCALE:NOT TO SCALE

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT ID	CONDUIT NO.	CONDUIT SIZE	CONDUIT TYPE	CONDUCTORS EACH CONDUIT NO.	CONDUCTORS EACH CONDUIT SIZE	CONDUCTORS EACH CONDUIT TYPE	FROM	TO	REMARKS
RL1	1	2"	①②	4/1	2/6	600V	LIGHTING CONTACTORS	POLE RL7	
RL2							POLE RL7	POLE RL8	
RL3							POLE RL8	POLE RL9	
RL4							POLE RL9	POLE RL10	
RL5							POLE RL10	POLE RL11	
RL6							POLE RL11	POLE RL12	
RL7							LIGHTING CONTACTORS	POLE RL1	
RL8							POLE RL1	POLE RL2	
RL9							POLE RL2	POLE RL3	
RL10							POLE RL3	POLE RL4	
RL11							POLE RL4	POLE RL5	
RL12				4/1	2/6	600V	POLE RL5	POLE RL6	
RL13	1	2"	①②	–	–	–	LIGHTING CONTACTORS	POLE RL1	③
RP1	1	1–1/4"	①②	–	–	–	PANEL 2P	POLE RL7	
RP2				–	–	–	POLE RL7	POLE RL8	
RP3				–	–	–	POLE RL8	POLE RL9	
RP4				–	–	–	POLE RL9	POLE RL10	
RP5				–	–	–	POLE RL10	POLE RL11	
RP6				–	–	–	POLE RL11	POLE RL12	
RP7				–	–	–	PANEL 2P	POLE RL1	
RP8				–	–	–	POLE RL1	POLE RL2	
RP9				–	–	–	POLE RL2	POLE RL3	
RP10				–	–	–	POLE RL3	POLE RL4	
RP11				–	–	–	POLE RL4	POLE RL5	
RP12				–	–	–	POLE RL5	POLE RL6	
RP13	1	1–1/4"	①②	–	–	–	PANEL 2P	POLE RL1	③
RS1	1	1–1/4"	①②	–	–	–	SECURITY PANEL	POLE RL7	
RS2				–	–	–	POLE RL7	POLE RL8	
RS3				–	–	–	POLE RL8	POLE RL9	
RS4				–	–	–	POLE RL9	POLE RL10	
RS5				–	–	–	POLE RL10	POLE RL11	
RS6				–	–	–	POLE RL11	POLE RL12	
RS7				–	–	–	SECURITY PANEL	POLE RL1	
RS8				–	–	–	POLE RL1	POLE RL2	
RS9				–	–	–	POLE RL2	POLE RL3	
RS10				–	–	–	POLE RL3	POLE RL4	
RS11				–	–	–	POLE RL4	POLE RL5	
RS12				–	–	–	POLE RL5	POLE RL6	
RS13	1	1–1/4"	①②	–	–	–	SECURITY PANEL	POLE RL1	③

ELECTRICAL SERVICE LAYOUT

SCALE:1/4"=1'–0"

NEMA 3R
SURFACE MOUNTING
14,000 AIC

PANEL SCHEDULE

NO. 4M — LOCATION: REMOTE AUTO YARD — SERVING: LIGHTING — 480/277 VOLTS 3PHASE 4WIRE — 400 AMPS WITH 400 MAIN BREAKER

CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	CKT NO.
1	CIRCUIT #1	27.50	100	2	SPARE		100	4
3								
5			3	6			3	
7	CIRCUIT #2	30.00	100	8	SPARE		100	10
9								
11			3	12			3	
13	SPACE			14	SPACE			16
15								
17				18				20
19								
21	SPACE			22				24
23	PANEL 2P	1.70	60					
25	TRANSFORMER 25KVA		2	26				28
27	SPARE		20					
29	LIGHTING CONTROLS	.10	20	30	SPACE			

REMARKS:

CONNECTED LOAD: 59.3 KVA 71 AMPS
DEMAND LOAD: 81.2 KVA 97 AMPS

NEMA 3R
SURFACE MOUNTING
10,000 AIC

PANEL SCHEDULE

NO. 2P — LOCATION: REMOTE AUTO YARD — SERVING: RECEPTACLES — 120/240 VOLTS 1PH 3WIRE — 100 AMPS WITH 100 MAIN BREAKER

CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	CKT NO.	LOAD DESCRIPTION	KVA	TRIP AMPS	CKT NO.
1	RECEPTACLE	.18	20	2	SPARE		20	4
3	HEATERS	1.00						
5	SECURITY	.50		6				8
7	SPARE							
9				10				12
11								
13				14				16
15								
17				18				20
19	SPARE		20		SPARE		20	

REMARKS:

CONNECTED LOAD: 1.7 KVA 7 AMPS
DEMAND LOAD: 1.7 KVA 7 AMPS

FILE NUMBER:

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 253-383-5841
HULTZ BHU CROSS consulting engineers, inc.
2407 North 31st Street
Tacoma, WA 98407 - (253) 759-0118

MARK	REVISION	BY:	APPROVED	DATE:

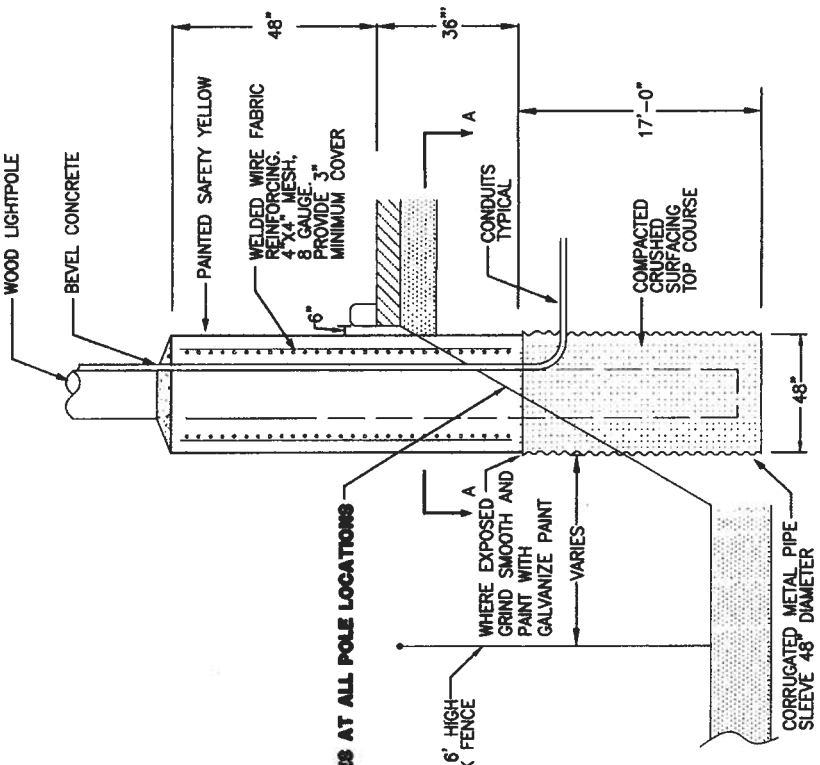
APPROVED
CHIEF ENGINEER – DATE 10 Jan 03
CHECKED BY – DATE
PROJECT ENGR.– DATE

MARSHALL AVE. AUTO FACILITY
MAXWELL WAY SITE
LIGHT POLE ELEVATIONS

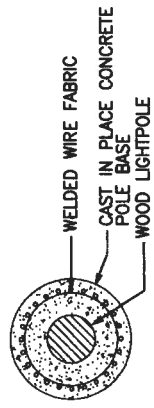
EP-5574-20
E3
SHEET 15 OF 17

DRAWING DATE: 4/7/03	TOWNSHIP: 1N RANGE: 3E SECTION: 34-35	CONTRACT NUMBER: 998147
PORT ADDRESS: 1800 PORT OF TACOMA ROAD	DATUM: HORIZ: NAD 83/91 VERT: MLLW	E NUMBER: 2157
PORT PARCEL: 30	DRAWING SCALE:	PHASE: FINAL

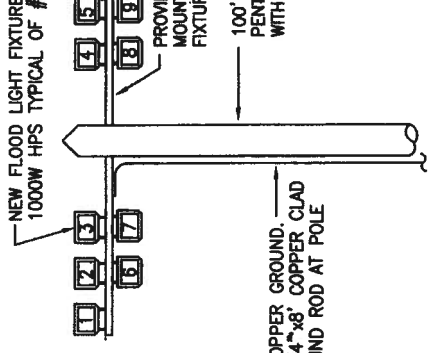
EXPIRES: NOVEMBER 26, 2004



(B/E3) **WOOD LIGHT POLE BASE**
NO SCALE

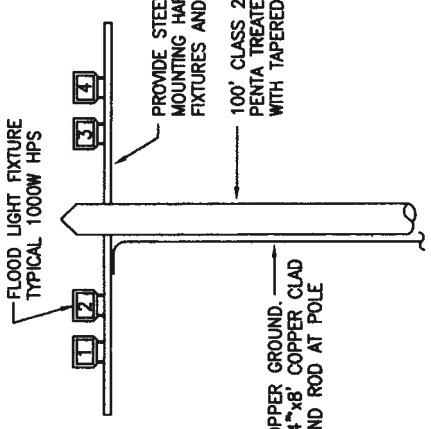


SECTION A-A
NOT TO SCALE



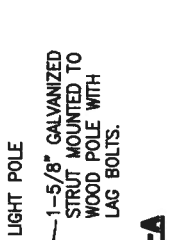
LIGHTING POLE #2,3,4,5
ELEVATION-REMOTE SITE
NO SCALE

RL2, RL3, RL4, RL5

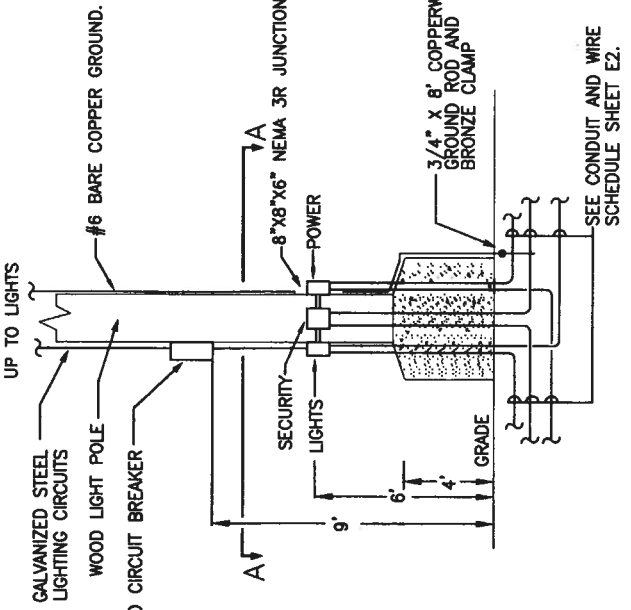


LIGHTING POLE #1,6,7,8,9,10,11,12
ELEVATION-REMOTE SITE
NO SCALE

RL1, RL6, RL7, RL8, RL9, RL10 ,RL11, RL12



SECTION A-A
NOT TO SCALE



(A/E3) **WOOD LIGHT POLE BASE ELEVATION**
NO SCALE

FILE NUMBER:

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 253-383-5841

HULTZ BHU CROSS
consulting engineers, inc.
2407 North 31st Street
Tacoma, WA 98407 – (253) 759-0118

MARK	REVISION	BY:	APPROVED:	DATE:

APPROVED
H. Adams
CHIEF ENGINEER – DATE
10 Nov 03

CHECKED BY – DATE

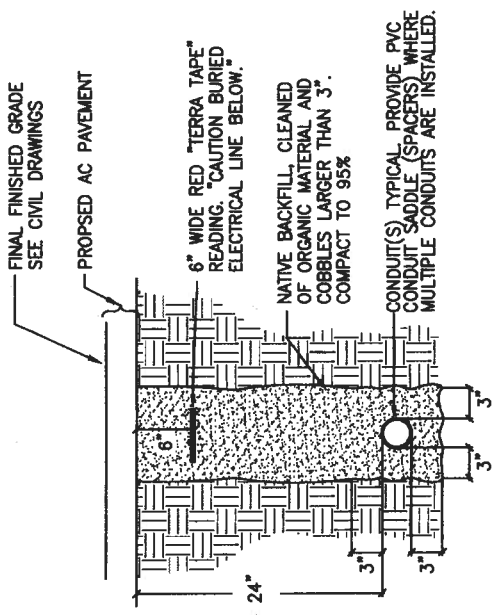
PROJECT ENGR.– DATE

EXPIRES: NOVEMBER 26, 2004

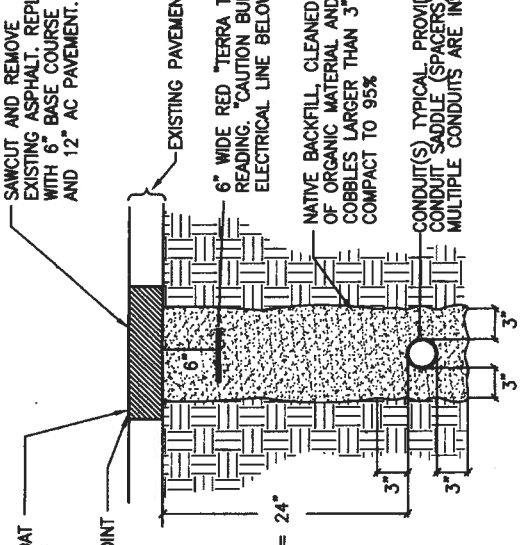
MARSHALL AVE. AUTO FACILITY
MAXWELL WAY SITE
LIGHTING CONTROL DIAGRAMS

EP-5574-20
E4
SHEET 16 OF 17

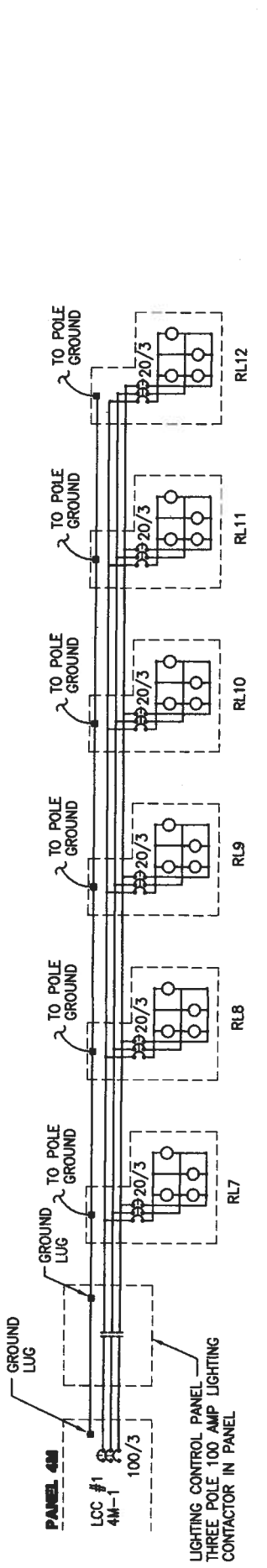
DRAWING DATE: 4/7/03	TOWNSHIP: 21N RANGE: 3E SECTION: 34–35	CONTRACT NUMBER: 998147
PORT ADDRESS: 1800 PORT OF TACOMA ROAD	DATUM: HORIZ: NAD 83/91 VERT: MLLW	E NUMBER: 2157
PORT PARCEL: 30	DRAWING SCALE:	PHASE: FINAL



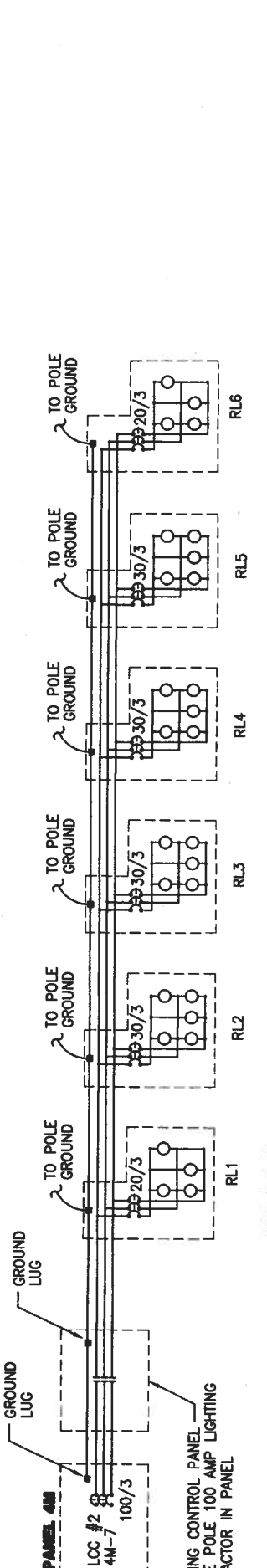
TYPICAL NEW AREA 600V OR COMMUNICATIONS CONDUIT TRENCHING
NOT TO SCALE



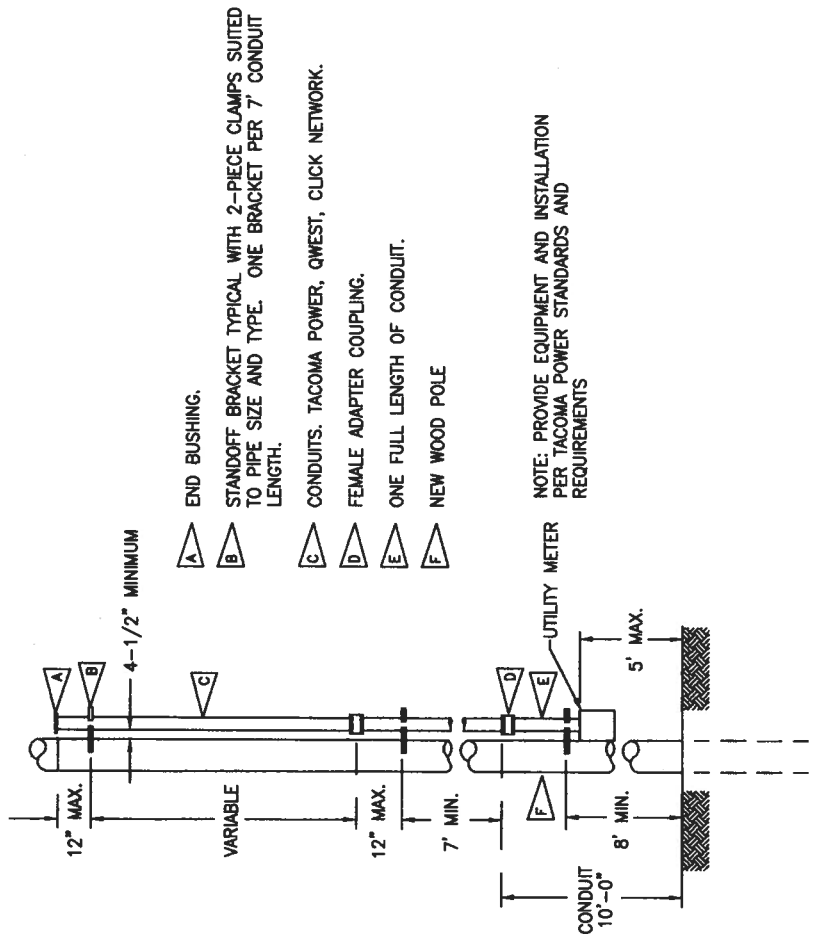
EXISTING ASPHALT TYPICAL TRENCH
NOT TO SCALE



LIGHTING CONTROL CIRCUIT #1 - REMOTE SITE
NO SCALE



LIGHTING CONTROL CIRCUIT #2 - REMOTE SITE
NO SCALE



(A/E4) **NEW POLE RISER ASSEMBLY**
NOT TO SCALE

FILE NUMBER:

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 253-383-5841
HULTZ - BHU - CROSS
consulting engineers, inc.
2407 North 31st Street
Tacoma, WA 98407 - (253) 756-0116

MARK	REVISION	BY:	APPROVED:	DATE:

APPROVED
CHIEF ENGINEER – DATE 10 Nov 03
CHECKED BY – DATE
PROJECT ENGR.– DATE

DRAWING DATE: 4/7/03
PORT ADDRESS: 1800 PORT OF TACOMA ROAD
PORT PARCEL: 30

MARSHALL AVE. AUTO FACILITY
MAXWELL WAY SITE
LIGHTING CONTROL PANEL DETAIL

TOWNSHIP: LIN RANGE: 3E SECTION: 34-35
DATUM: HORIZ: NAD 83/91 VERT: MLLW
DRAWING SCALE:

EP-5574-20
E5
SHEET 17 OF 17

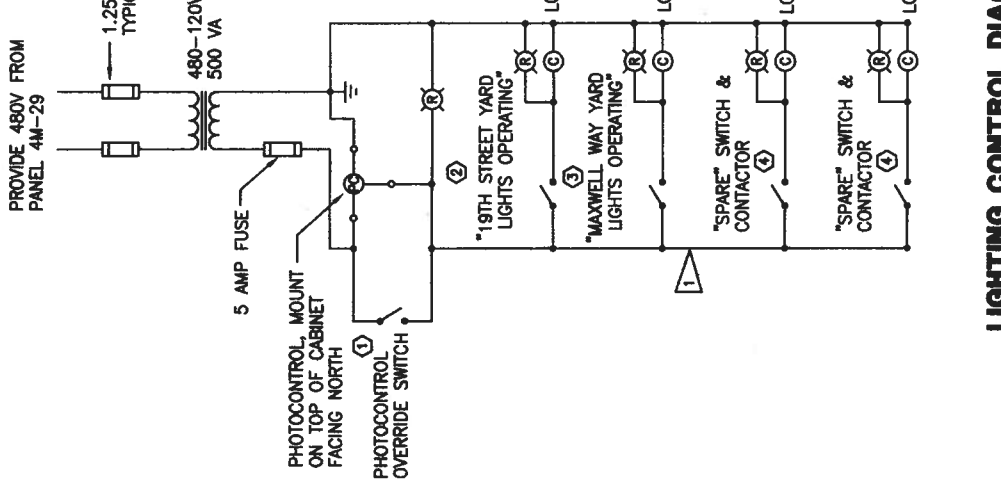
CONTRACT NUMBER: 998147
E NUMBER: 2157
PHASE: FINAL

ELECTRICAL NOTES:

1. PROVIDE PLASTIC WIRE CHANNEL IN CABINET FOR SEPARATION OF POWER AND CONTROL WIRING.
2. MINIMUM 1-1/4" GALVANIZED STEEL STRUT.
3. PROVIDE 250 WATT, 120V HEATER INTEGRAL TO PANEL

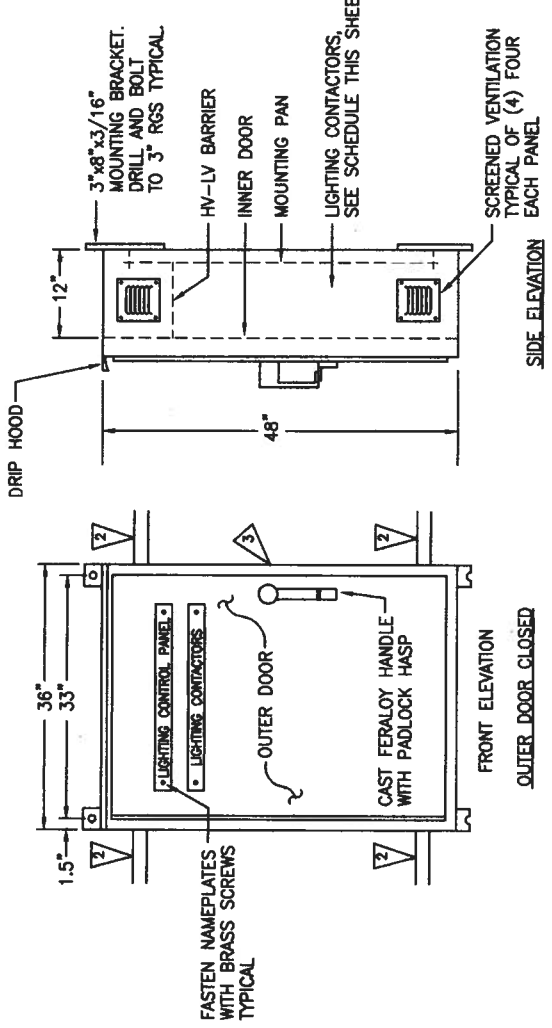
LIGHTING CONTACTOR SCHEDULE (480V)

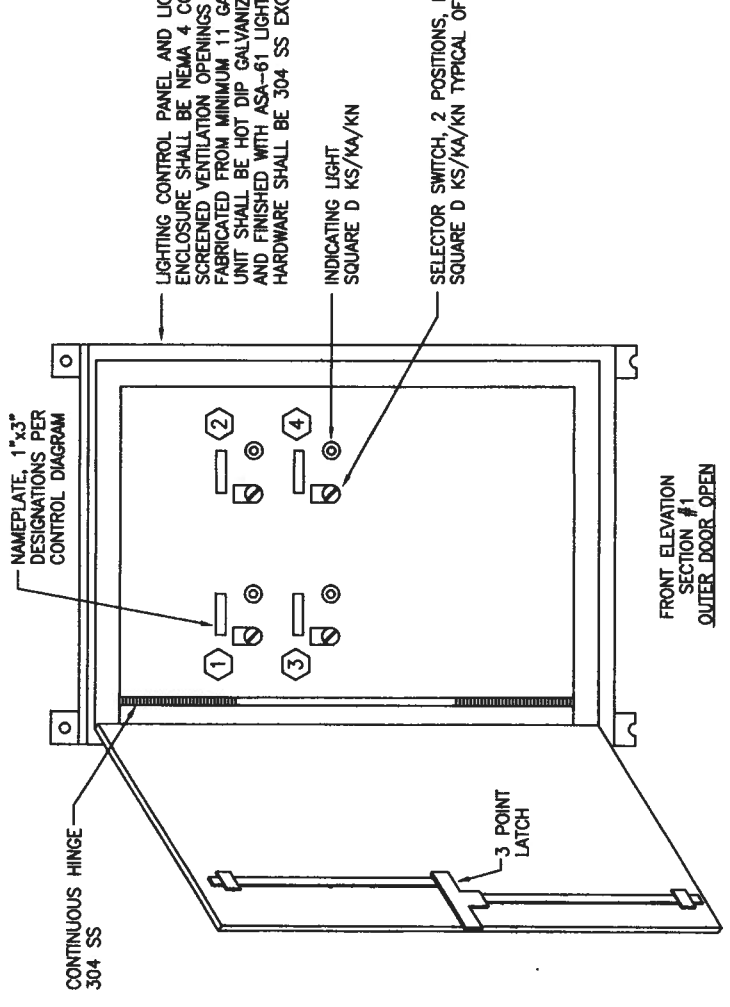
(1) 100/3P YARD LIGHTS ALONG 19TH STREET
(1) 100/3P YARD LIGHTS ALONG MAXWELL WAY
(2) 100/3P SPARE



LIGHTING CONTROL DIAGRAM

SCALE: NOT TO SCALE





LIGHTING CONTROL PANEL

SCALE: NOT TO SCALE