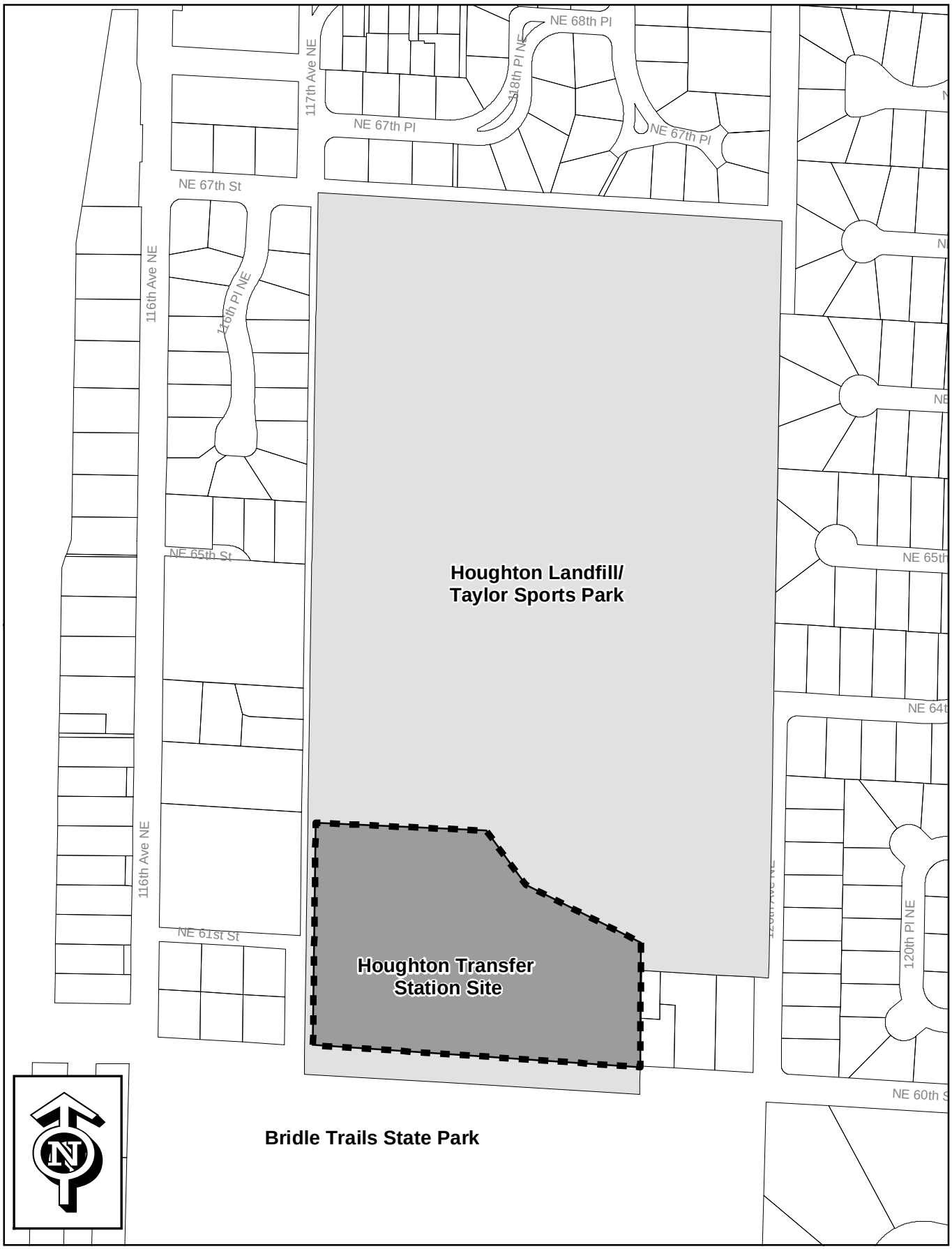

NE 68th Pl
118th Pl NE
117th Ave NE
NE 67th Pl
NE 67th Pl
NE 67th St
116th Ave NE
116th Pl NE
NE 65th St
Houghton Landfill/
Taylor Sports Park
NE 65th
NE 64t
116th Ave NE
NE 61st St
Houghton Transfer
Station Site
120th Pl NE
NE 60th S
Bridle Trails State Park
N

Attachment to
Zoning Permit Application

Houghton Transfer Station
Mitigation Project

Project Description

The Houghton Transfer Station site is located within the City of Kirkland, in the SW ¼ of Section 9, Township 25 North, Range 5 East. The site is bordered on the south by NE 60th Street and on the east by a residential lot and 120th Avenue NE (see Sheet G-1). Single-family homes between the site and 116th Avenue NE border the trailer yard area on the west. The north boundary of the site borders the closed Houghton Landfill, recently redeveloped as a ballfield park (Taylor Sports Park). There are no recorded easements across the transfer station site per the King County Property Division.

The Houghton Transfer Mitigation Project includes several independent improvements intended to increase customer and employee operational safety, and to attenuate noise at adjacent residential property associated with day-to-day transfer station operations. The work includes five components, described below. The transfer station site is approximately 6.68 acres in size. References to "the site" are generally to the transfer station site overall, rather than to the specific area of disturbance, unless otherwise noted.

Proposed safety improvements and replacement of the roof structure are projected to result in no change in use over existing conditions or the existing level of operations. The station is currently operating near maximum capacity, which is constrained by the size of the transfer building floor and number of customer unloading stalls. Increasing the trailer yard area would not increase the throughput capacity of the station or result in increased customer or transfer trailer traffic to or from the station. Existing hours of operation are 8:00 AM through 5:30 PM, seven days per week (with the exception of major holidays). No change to the customer base or hours of operation is proposed. Existing landscaping will remain undisturbed or will be replaced in-kind following construction.

ROOF STRUCTURE REPLACEMENT – The proposal includes replacing the existing, 40-year-old transfer station roof structure to provide additional inside vertical clearance and reduce the number of roof support columns. The existing low roof and numerous columns conflict with customer traffic and commercial truck movements, particularly the tipping requirements of large commercial collection vehicles. The building has suffered structural damage due to impact from vehicles. Customer vehicles have also been damaged.

The new roof structure will shelter the existing footprint of the transfer building. The intent of the design is to increase the interior vertical clearances and open up the floor plan to promote a safer, more user-friendly facility. The proposed design incorporates three steel trusses to clear-span the building (see Sheet A-3). This approach responds to the design objective in two ways. First, by using an inverted truss design in which the support structure is located above the roof plane, the roof can be kept closer to the operating floor while still providing the necessary minimum truck tipping vertical clearance of 25 feet 10 inches within the building (see Sheet A-4). Second, the clear span will allow the number of support columns to be reduced from 20 to 6, which will open up the floor plan and create a more obstruction-free (and thus safer) tipping floor area.

The replacement roof structure will be constructed with an absorptive surface on the underside for noise reduction.

A series of masonry enclosure walls are proposed at the north and south ends of the tipping floor to provide additional screening along the public side of the building that fronts NE 60th Street, and to the sports fields to the north. The enclosure walls will range in height from 10 feet to 14 feet above the tipping floor. This will screen the majority of activity that occurs within the structure. The enclosure walls will also aid in the reduction of noise generated at the tipping floor. In addition to the screen walls on the south public facade, landscaping is proposed on the hillside, immediately south of the building, to soften the appearance of the structure.

A fire suppression sprinkler system will be installed in the replacement roof structure. This will constitute a safety improvement over the existing structure, in which there is no sprinkler system. A new 6-inch water main service from the 12-inch main located in NE 60th Street is proposed to provide sprinkler service to the transfer building.

TRAILER YARD RECONFIGURATION – The existing trailer (solid waste container) yard located west of the transfer station will be expanded to the east from the existing 13,760 square feet (sf) of paved area to 33,410 sf. This will provide additional storage and maneuvering area for transfer trailers. The existing, very restricted yard area results in conflicts between transfer trailer movements and out-bound customer traffic, creating safety hazards. The proposal includes increasing the number of "aisles" for transfer trailer parking from 7 to 14, though the number of trailers to be temporarily stored on the site will remain a maximum of 18. During normal operations, transfer trailers will only be parked two per aisle compared to three per aisle under existing conditions. This will increase the efficiency of truck movements while maneuvering trailers, reduce conflicts with outbound commercial and self-haul vehicles, and improve access to loaded containers to move them off-site more quickly.

The traffic control pavement markings in the vicinity of the transfer trailer site entrance will be improved of to ensure that all customers re-scale before leaving the site, and to improve traffic safety at this entrance point.

Three additional pole-mounted light fixtures will be added at the perimeter of the yard to increase visibility when natural lighting levels are low. Two of these poles will be located along the north edge of the yard, and one will be added to the east side (see Sheet E-1). The lights will be baffled and directed downward so that light does not intrude on adjoining residential properties to the west.

As part of the reconfiguration of the paved yard area, the existing sanitary sewer pump station located in this area may be relocated and/or expanded to accommodate additional surface water collection from the increased trailer yard area. A gravity sewer conversion was originally intended as part of this project. The conversion has since been modified to an expansion of the existing pump system due to the limited life of the facility and the construction cost associated with gravity sewer conveyance to NE 116th Avenue NE. The expanded sewer pump system will provide for sanitary sewage collection from the existing and reconfigured trailer yard storage areas. Storm drainage from the trailer yard is considered to be potentially contaminated by leakage from loaded trailers. The primary constraint to the new sewer pump system design is the sewer discharge limitation for the site. The existing pump system has the capacity to discharge the increased surface water volume; however, the discharge limit will need to be increased through the County's waste discharge permit process. Any additional on-site storage required will be the result of discharge limitations set by the new permit. In the event of a storage requirement, a new vault will be incorporated into the pump system design. The stormwater

collection system for the reconfigured trailer yard will consist of existing and new catch basins that connect to the pump station with 8-inch and 12-inch diameter pipes. Shallow concrete rolled curb and gutters will be installed perpendicular to sheet flow to improve runoff interception in the yard. A continuous precast concrete barrier wall along the west edge of the yard will help intercept flow along the west edge and direct this flow to existing catch basins.

SOUND WALL – A 433-foot long sound wall is proposed along the west boundary of the site (see Sheet C-3 and C-6). The wall will be 12 feet tall along the majority of the west boundary. At the location where the wall encroaches on a wetland buffer from the west (approximately the middle of the wall), the wall will be constructed at a height of 6 feet, to replace existing fencing. This wall will help buffer the adjacent residential properties from noise generated within the trailer yard and to a lesser extent inside the transfer building. The new sound wall will replace the existing parallel wood and chainlink fences along the western edge of the property. The wall will be located on the same alignment as the two existing fences. The wall will be a pre-engineered system consisting of heavy timber posts approximately 12 feet on-center, with T1-11 patterned plywood sandwich panels between posts. This patterned plywood is often used as siding on residential and light commercial structures. All wall materials will be pressure-treated to resist decay. The treatment process will result in a rustic greenish-gray or brownish appearance to the finished wall.

LOADING BAY APPROACH ROAD – As King County has transitioned to using longer transfer trailers, the curved approach road to the loading bay has become increasingly hazardous since the truck and trailers cannot swing wide enough to clear the inner hillside. Trailers tracking onto the unpaved toe of the inner slope contribute to the erosion of soil which eventually adds considerable sediment load to surface water runoff from the site. The proposal includes widening the paved approach road from 18 feet to 24 feet, and increasing the radius of the curve from approximately 68 feet to 73 feet (see Sheet C-4). The roadside slopes will be retained with a two-tier height of concrete blocks. A bumper strip and curb along the face of the inner blocks will help guide the trailers. Side slopes will be regraded. These side slopes are currently too steep to allow personnel to safely mow the grass cover. Steeper slope areas will be finished with a shotcrete (thin concrete layer) cover to eliminate the need for grass maintenance.

One additional pole-mounted light fixture will be added at the northeast perimeter of the approach road to increase visibility when natural lighting levels are low. The light will be baffled and directed downward so that light does not intrude on adjoining residential properties.

PEDESTRIAN PATHWAY – A Memorandum of Understanding (MOU) between the City of Kirkland and King County Solid Waste Division (October 18, 2005) sets forth design and performance standards for an ADA-compliant pedestrian pathway to be constructed along the north side of NE 60th Street between 116th Avenue NE and 120th Avenue NE. The pathway is proposed as a 5-foot wide asphalt surface with extruded curbing. Pedestrian refuge areas will be provided in front of the transfer station, along with thermoplastic crosswalk markings across the driveway entrances. Some lengths will include a planter area buffer for path separation from NE 60th Street (see Sheets C-11 and C-12)

A preliminary assessment of the construction sequence indicates that the Houghton Transfer Station will need to be closed for a construction period of approximately 12 weeks. At the time of this writing, King County projects that construction hours will not exceed those allowed by the Kirkland City Code, and work days will be limited to Monday through Saturday, excluding any major holidays that may fall within this 12-week period. A more detailed assessment of the closure period requirement is being prepared as part of the design work.

Neighborhood Meeting

The King County Department of Natural Resources and Parks, Solid Waste Division, held a public meeting on May 22, 2007 to discuss proposed safety improvements and roof replacement at the Houghton Transfer Station.

Additional Information

Sound Wall

A copy of the noise study, *Acoustical Study Houghton Transfer Station Site Mitigation and Roof Replacement Project* (The Greenbusch Group, Inc., August 30, 2007), performed for the project is attached. The purpose of the *Acoustical Study* was to document existing site noise characteristics, determine the effectiveness of existing mitigation barriers, and compliance with the City of Kirkland Noise Regulations. The report also predicts noise levels associated with proposed site improvements. Proposed improvements are not anticipated to increase truck activity on the site; noise levels are not expected to increase over existing conditions. The study found that noise levels at the transfer station east boundary are compliant with the City of Kirkland Noise Regulations; however, this is not the case at the west property line. At this location, a sound wall will be constructed to lower noise levels to within code. The sound wall will be a solid barrier, 12-foot high wall for the entire length of the western property line, excluding that portion within the wetland buffer detailed in the *Wetland Assessment* (Herrera Environmental Consultants, Inc, September 2007). Within the wetland buffer the sound wall will be reduced to a 6-foot height, equivalent to the height of the existing fence.

The sound wall will not affect sight distance for traffic exiting the transfer station.

Roof Replacement

The new roof structure will increase the interior vertical clearances and open up the floor plan (see Sheet A-2). The proposed design incorporates three steel trusses to clear-span the building. The inverted truss design will keep the roof closer to the operating floor while still providing the necessary minimum truck tipping vertical clearance of 25 feet 10 inches within the building (see Sheet A-4). The clear span will allow the number of support columns to be reduced from 20 to 6, which will open up the floor plan and create a more obstruction-free (and thus safer) tipping floor area.

The exterior appearance of the new roof will consist of a low- to medium-gloss Kynar finish on a metal, standing seam roof. This finish combined with the very flat roof slope of 1:12 (1 foot vertical to 12 feet horizontal) will preclude creating off-site glare from the roof; the roof surface will not be visible to viewers from the surrounding ground elevation.

The average building elevation has been calculated and included as Figure 1 to these Attachments. The resulting average building elevation is 448 feet. This elevation and footprint will not be modified as part of the roof replacement.

Type of Construction

A City of Kirkland Building Department representative (Phillip Vartanian) advised King County during a prior Process II-B application for the Houghton Transfer Station Mitigation Project (Pre-Application Meeting, December 12, 2000) that the sound wall classification will be U-2 for construction and V-N for Fire Code. The project architect identifies the new roof structure as V-N for Fire Code.

Storm Drainage Modifications

The stormwater collection system for the reconfigured trailer yard will consist of existing and new catch basins that connect to the pump station with 8-inch and 12-inch diameter pipes. Shallow concrete rolled curb and gutters will be installed perpendicular to sheet flow to improve runoff interception in the yard. A continuous precast concrete barrier wall along the west edge of the yard will help intercept flow along the west edge and direct this flow to existing catch basins. The stormwater will pass to a nearby sanitary sewer manhole where the potentially contaminated stormwater combines with site sanitary sewage. From this point, the combined flow will use the existing sanitary sewer pump station to discharge from the site. The sewer pump station may be expanded to accommodate additional surface water collection from the increased trailer yard area. The sewer pump system will provide for sanitary sewage collection from the existing and reconfigured trailer yard storage areas. Storm drainage from the trailer yard is considered to be potentially contaminated by leakage from loaded trailers. The primary constraint to the new sewer pump system design is the sewer discharge limitation for the site. The existing pump system has the capacity to discharge the increased surface water volume; however, the discharge limit will need to be increased through the County's waste discharge permit process. Any additional on-site storage required will be the result of discharge limitations set by the new permit. In the event of a storage requirement, a new vault will be incorporated into the pump system design.

"Conceptual storm drainage plans" are not provided with the Zoning Permit application because proposed storm drainage modifications – with the exception of about 2,100 sf of shotcrete to be applied to the loading bay approach road side slopes – will discharge to the sanitary sewer system (due to the potential for surface water runoff to come into contact with leakage from solid waste containers). Runoff from the approach road side slopes will drain to the existing on-site stormwater system and then to the municipal storm drainage collection system, but the added impervious surface area is below the City's threshold for stormwater quality and quantity control. The proposed roof replacement will be a 1:1 replacement of the impervious area of the existing roof; therefore, no additional roof runoff will be generated from this improvement.

The pedestrian pathway improvements will result in an increase in pervious area along the right-of-way and will not generate additional runoff. The existing condition of the pathway area is impervious pavement and gravel. The new pathway will incorporate a vegetative buffer between the road and pathway. The addition of the vegetative area is the increase in pervious area. There will be a 12-inch diameter stormwater conveyance pipe and approximately 25 cy of fill placed in the roadside ditch in the NE 60th Street right-of-way adjacent to the transfer station to construct the proposed pedestrian pathway. It has not yet been determined whether this ditch meets the definition of a "jurisdictional ditch" under a recent change in U.S. Army Corps of Engineers regulations. It seems unlikely that it does, as the ditch appears to have been excavated (decades ago) in uplands.

Construction Methods in Areas with Potential Exposure to Methane Gas

The transfer station site is located partially on a former solid waste landfill site. The soil cover over the refuse fill in the trailer yard reconfiguration area (northwest corner of the site) is approximately 4.5 to 5.5 feet thick.

As indicated in the *Final Geotechnical Report* (PacRim Geotechnical, Inc., March 29, 2002), refuse will likely be encountered during the work proposed in the trailer yard reconfiguration area. There is no indication that refuse will be encountered during any other element of this project. Material excavated from areas where soils may have been in contact with landfilled waste will be directly deposited in trucks and removed from the site for disposal at Cedar Hills Regional Landfill (SEPA Checklist Section B.7.a.2). Due to the presence of refuse at the site and the related potential for methane gas, all excavation activities will be monitored in accordance with a Public Health Seattle and King County approved Environmental Protection Plan.

Transfer Trailer Approach Road Retaining Walls

As the County has transitioned to using longer transfer trailers, the curved approach road to the loading bay has become increasingly hazardous since the truck and trailers cannot swing wide enough to clear the inner hillside. Trailers tracking onto the unpaved toe of the inner slope contribute to the erosion of soil that eventually adds considerable sediment load to surface water runoff from the site. The proposal includes widening the paved approach road from 18 feet to 24 feet, and increasing the radius of the curve from approximately 68 feet to 73 feet (see Sheet C-4). The roadside slopes will be retained with a two-tier height of concrete blocks. A bumper strip and curb along the face of the inner blocks will help guide the trailers. Side slopes will be regraded. Structural calculations for the retaining wall system are provided in Attachment 2 to this permit application.

Lights

Four additional pole-mounted, 400-watt high-pressure sodium light fixtures will be added (three at the perimeter of the yard and one along the tunnel approach road) to increase visibility when natural lighting levels are low. The lights will be mounted at approximately 45 feet above the ground elevation. Two of these poles will be located along the north edge of the yard, and one will be added to the east edge of the yard. The approach road light will be in the northeast corner of the road. The lights will be equipped with cut-off shielding and directed downward so that light does not intrude on adjoining residential properties.

Pedestrian Pathway

A MOU dated October 18, 2005 between the City of Kirkland and King County Solid Waste Division sets forth design and performance standards for an ADA-compliant pedestrian pathway to be constructed along the north side of NE 60th Street between 116th Avenue NE and 120th Avenue NE. The pathway is proposed as a 5-foot wide asphalt surface with extruded curbing. Pedestrian refuge areas will be provided in front of the transfer station, along with thermoplastic crosswalk markings across the driveway entrances. Some lengths will include a planter area buffer for path separation from NE 60th Street (see Sheets C-11 and C-12).

As part of the pedestrian pathway construction, the storm drainage system along NE 60th Street will be modified. A 12-inch diameter stormwater conveyance pipe and approximately 25 cy of fill will replace approximately 200 feet of roadside ditch in the NE 60th Street right-of-way adjacent to the transfer station.

Proposed pedestrian pathway improvements will not affect sight distance for traffic exiting the transfer station.

Lot Size and Lot Coverage Calculation

Gross Site Area	25.0 acres [1]
Existing Impervious Area	3.40 acres (13.6 %) [2]
New Impervious Area	0.51 acre [2]
Total Impervious Area following Improvements	3.91 acres (15.7 %) [2]

Notes:

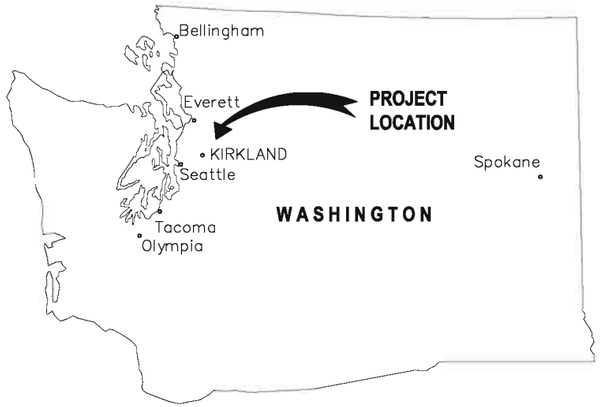
[1] The gross site area includes the custodial landfill portion of the property, 18.32 acres in size.

[2] Areas were calculated electronically by computer from design drawings.

King County

Department of Natural Resources and Parks
Solid Waste Division

HOUGHTON TRANSFER STATION MITIGATION PROJECT

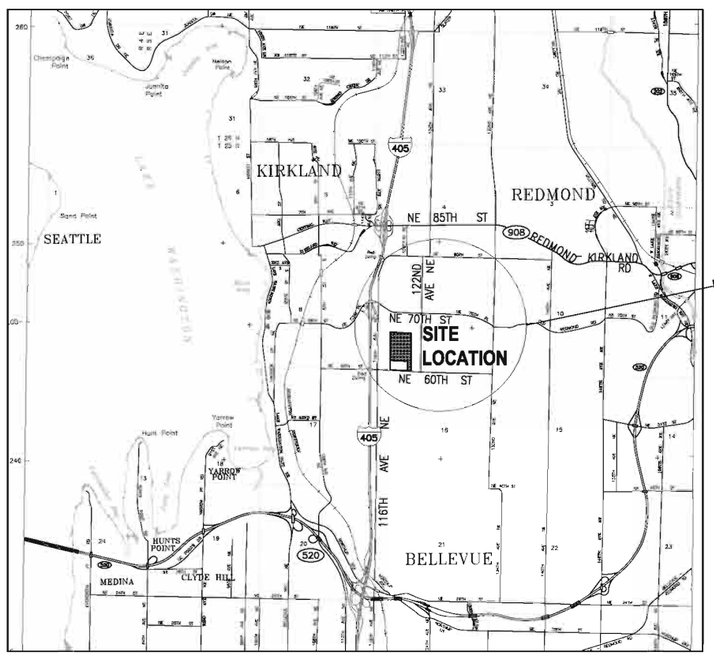


LOCATION MAP

KING COUNTY OFFICIALS:

KING COUNTY EXECUTIVE
RON SIMS

COUNCIL MEMBERS
KATHY LAMBERT
LARRY PHILLIPS
PETE VON REICHBAUER
DOW CONSTANTINE
LARRY GOSSETT
JANE HAGUE
JULIA PATTERSON
BOB FERGUSON
REAGAN DUNN



VICINITY MAP

SCALE IN FEET

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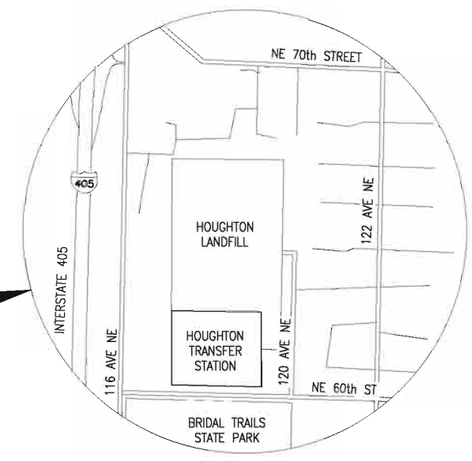

GENERAL NOTES

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE PROJECT REPRESENTATIVE OF ANY DISCREPANCIES.

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E-5	ELECTRICAL SCHEDULES

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED
DRAWN
VERIFY SCALE
BAR IS ONE INCH ON ANSI "D" DRAWING
0 1"

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
				PROCESS IIB ZONING PERMIT APPLICATION

King County
Department of Natural Resources and Parks
Solid Waste Division

R.W. Beck, Inc.
1001 Fourth Ave, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

ANDERSEN BJORNSTAD KANE JACOBS • INC
CONSULTING ENGINEERS
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HOUGHTON TRANSFER STATION
MITIGATION PROJECT

COVER SHEET

PROJECT NUMBER: 11-00542-1000
SHT. 1 OF: XX
DRAWING NUMBER: G-1

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SEC 9, T25N, R 5E

ABBREVIATIONS

AB	ANCHOR BOLT
ACP	ASPHALT CONCRETE PAVEMENT
APPROX	APPROXIMATELY
ATB	ASPHALT TREATED BASE COURSE
B	BORING
BLDG	BUILDING
BM	BENCHMARK
BOT	BOTTOM
BRG	BEARING
BVC	BEGINNING OF VERTICAL CURVE
℄	CENTER LINE
CB	CATCH BASIN
CF	CUBIC FEET
CI	CAST IRON
CL, CLR	CLEAR, CLEARANCE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONT	CONTINUE, CONTINUATION
COORD	COORDINATE
CPEP	CORRUGATED POLYETHYLENE PIPE
CSBC	CRUSHED SURFACE BASE COURSE
CTR	CENTER
CTSK	COUNTERSINK
CY	CUBIC YARD
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DI	DUCTILE IRON, DROP INLET
DIAG	DIAGRAM
DIM	DIMENSION
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
ELEC	ELECTRICAL
EL, (ELEV)	ELEVATION
EQ, EQL	EQUAL
EQUIP, EQPT	EQUIPMENT
EST	ESTIMATED
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EX, EXIST	EXISTING
EXP	EXPANSION
FIN	FINISHED
FL	FLANGED, FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FT	FOOT, FEET
GA	GAUGE
GALV	GALVANIZED
GR	GRADE
GRD	GROUND
GW	GROUNDWATER
H	HORIZONTAL
HDPE	HIGH DENSITY POLYETHYLENE
HI PT	HIGH POINT
HOR, HORIZ	HORIZONTAL
IE	INVERT ELEVATION
IMBED	IMBEDMENT
IN	INCH
INV	INVERT
LF	LINEAL FEET
LOW PT	LOW POINT
MANUF, MFR	MANUFACTURER
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MUTCD	MANUAL ON UNIFORM TRAFFIC DEVICEES
MW	MONITORING WELL
N	NORTH, NORTHERLY
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON-CENTER
OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
PC	POINT OF CURVATURE
PE	PLAIN END
PERF	PERFORATED
PI	POINT OF INTERSECTION
PL, ℙ	PROPERTY LINE
PS	PUMP STATION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVE, POLYVINYL CHLORIDE
R	RANGE
RCP	REINFORCED CONCRETE PIPE
RVI	RADIUS OF VERTICAL INTERSECTION
RP	RADIUS POINT
REQ'D	REQUIRED
S	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN
SEC, SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SL	SLOPE
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
T	TOWNSHIP
TBM	TEMPORARY BENCH MARK
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
THK	THICK
TRANSV	TRANSVERSE
TYP	TYPICAL
VAR	VARIES, VARIABLE
VC	VERTICAL CURVE
VERT	VERTICAL
VV	VALVE VAULT
W	WATER, WEST, WIDTH, WIDE
W/	WITH
W/O	WITHOUT
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WWF	WELDED WIRE FABRIC

WETLAND BUFFER
WETLAND
GEOTEXTILE
UNDERGROUND WATER
UNDERGROUND STORM DRAIN
UNDERGROUND SANITARY SEWER
DIRECTION OF FLOW
WELDED WIRE FABRIC
NEW CONSTRUCTION
EXISTING FEATURE OR PIPE
TO BE REMOVED, TO BE ABANDONED
PROPERTY LINE
MATCH LINE
CENTERLINE
FENCE
NEW GRADE INTERIM CONTOUR
450 NEW GRADE INDEX CONTOUR
FINISH GRADE SPOT ELEVATION
FILTER FABRIC FENCE
SWALE OR DITCH
CULVERT
3 1 3:1 SLOPE (3 HORIZ TO 1 VERT)
ECOLOGY BLOCK WALL
MANHOLE
VAULT
CATCH BASIN (CB) OR DROP INLET (DI)
ø ROUND OR DIAMETER
△ DELTA (ANGLE), ANGLE POINT
ℙ PLATE OR PROPERTY LINE
℄ CENTERLINE
& AND
@ AT

SYMBOLS

(TOP) FILL EMBANKMENT (PLAN)
(TOP) CUT EMBANKMENT (PLAN)
NATURAL GROUND OR GRADE (PROFILE)
OPENING OR DEPRESSION IN SLAB OR WALL (PLAN)
REINFORCED CONCRETE (PLAN)
REINFORCED CONCRETE (SECTION)
NEW CONCRETE (SECTION)
EXISTING CONCRETE (SECTION)
PROJECT AREA (PLAN)
PRECAST CONCRETE (SECTION)
SHOTCRETE (PLAN)
SHOTCRETE (SECTION)
EROSION CONTROL MATTING AND HYDROSEED
STRUCTURAL FILL (SECTION)
SAND
PIPE BEDDING
GRATING (PLAN)
TOPSOIL (SECTION)
ASPHALT CONCRETE PAVEMENT (PLAN AND SECTION)
CRUSHED SURFACING BASE COURSE (SECTION)
COARSE AGGREGATE
PREPARED SUBGRADE (SECTION)
TREE/BRUSH (PLAN)
B-4 SOIL BORING (PLAN)
LANDFILL GAS WELL (PLAN)
GRAVEL DRAIN ROCK
NATIVE BACKFILL
WETLAND BUFFER

TYPICAL SECTION AND DETAIL REFERENCE SYSTEM

SECTION CUT ON DWG C-4 AND SHOWN ON C-5: (A / C-5) — SECTION LETTER; DWG ON WHICH SECTION APPEARS

ON DWG C-5 THIS SECTION IS IDENTIFIED AS: (A / C-4) — SECTION LETTER; DWG ON WHICH SECTION IS CUT

SECTION CUT ON DWG C-4 AND SHOWN ON DWG 4: (A / –) — SECTION LETTER; SECTION APPEARS ON SAME DWG AS CUT

SECTION HAS CUT TAKEN ON MORE THAN ONE DWG (A / TYP) — SECTION LETTER; SECTION IS TYPICAL TO MANY SITUATIONS

DETAILS ARE REFERENCED IN A SIMILAR MANNER EXCEPT NUMBERS ARE USED INSTEAD OF LETTERS

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

dhupchanen Sep 18, 2007 – 4:04pm – R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-G-02.dwg

DESIGNED
DRAWN
VERIFY SCALE
BAR IS ONE INCH ON ANSI "D" DRAWING
0 1"

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
				PROCESS IIB ZONING PERMIT APPLICATION

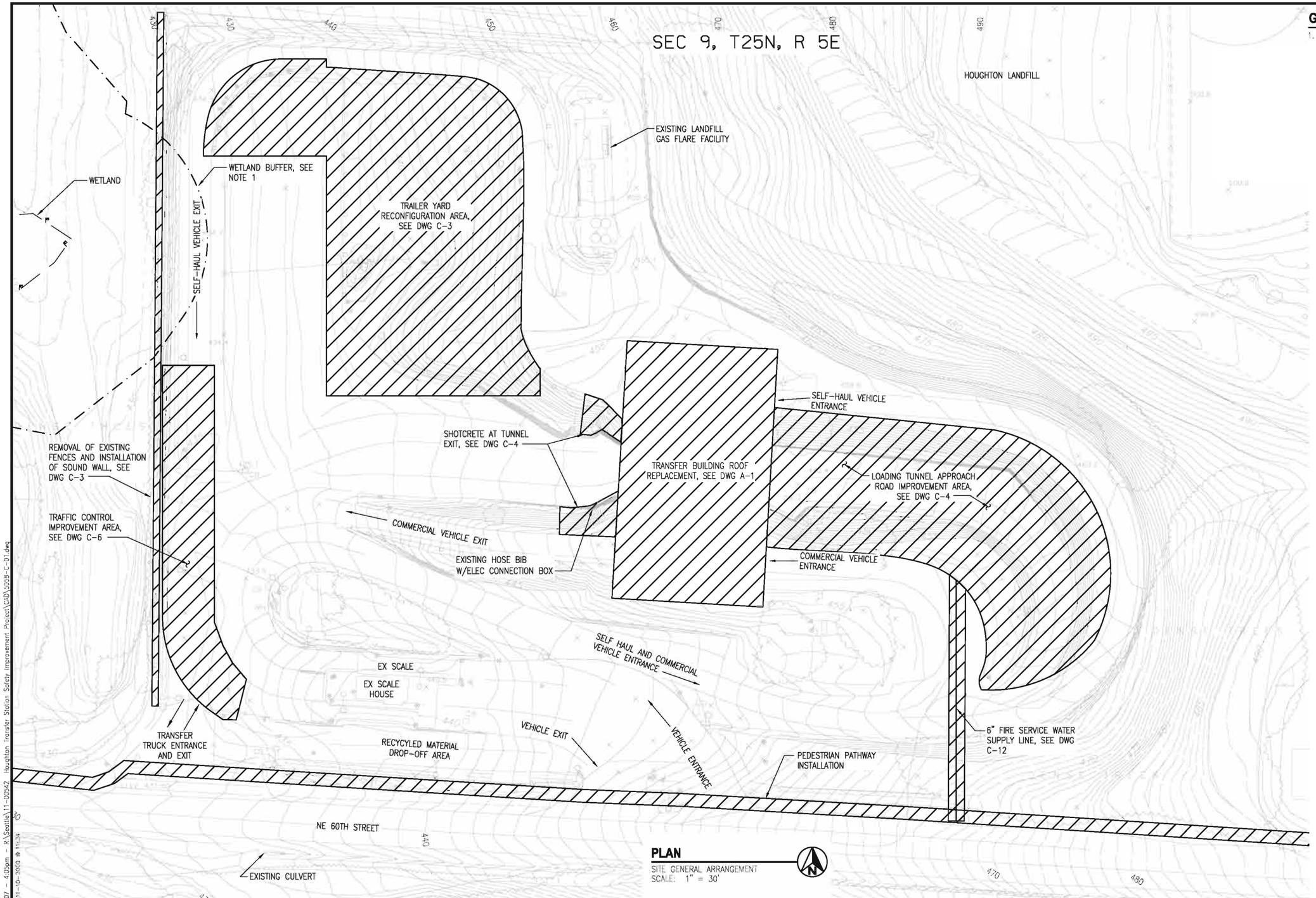
King County
Department of Natural Resources and Parks
Solid Waste Division

R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

HOUGHTON TRANSFER STATION
MITIGATION PROJECT

SYMBOLS AND ABBREVIATIONS

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: G-2



PLAN
SITE GENERAL ARRANGEMENT
SCALE: 1" = 30'

1"=30'-0" 30 0 30 60
Scale Feet

GENERAL NOTES

1. TIMBER SOUND WALL WITHIN WETLAND BUFFER AREA SHALL BE 6' HIGH, SEE DWG C-8.

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"					PROCESS IIB ZONING PERMIT APPLICATION
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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HOUGHTON TRANSFER STATION
MITIGATION PROJECT

GENERAL ARRANGEMENT
SITE PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-1

drupcharoen Sep 18, 2007 - 4:05pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-01.dwg
SStearns I:\KAA38\KAA38C01 11-10-2000 @ 11:24

PLAN

TEMPORARY EROSION AND SEDIMENT CONTROL
SCALE: 1" = 30'

DETAIL 1

FILTER FABRIC FENCE
SCALE: NTS

GENERAL TESC NOTES

1. WHERE POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL AND TO MINIMIZE EROSION.
2. RESTORATION AND ENHANCEMENT OF THE CONSTRUCTION SITE ARE EXPECTED TO STABILIZE EXPOSED SOILS AND RETURN THE AREA TO ITS ORIGINAL OR AN IMPROVED CONDITION. RESTORATION WILL OCCUR IN ALL AREAS OF THE CONSTRUCTION SITE WHICH HAVE BEEN DISTURBED.
3. CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE CHANNELS, CULVERTS, AND STRUCTURES. WHENEVER EXISTING DRAINAGE CHANNELS, CULVERTS, OR STRUCTURES ARE DISTURBED, THE CONTRACTOR SHALL PROVIDE SUITABLE MEANS FOR DIVERTING AND MAINTAINING ALL FLOWS DURING CONSTRUCTION IN THAT AREA AT CONTRACTOR EXPENSE. AFTER CONSTRUCTION HAS BEEN COMPLETED, ALL CULVERTS, CHANNELS, AND STRUCTURES DISTURBED SHALL BE RETURNED TO THEIR ORIGINAL CONDITIONS.
4. EFFECTS OF EROSION AND SEDIMENTATION WILL BE MINIMIZED IN CONFORMANCE WITH THE FOLLOWING GENERAL PRINCIPLES:
   A. LEAVING SOIL EXPOSED FOR THE SHORTEST POSSIBLE TIME.
   B. REDUCING THE VELOCITY AND CONTROLLING THE FLOW OF RUNOFF.
   C. DETAINING RUNOFF ON THE SITE TO TRAP SEDIMENT.
   D. RELEASING RUNOFF SAFELY TO DOWNSTREAM AREAS.
5. THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS.
6. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, TESC FACILITIES SHALL BE INSTALLED, MAINTAINED, AND UPGRADED AS NECESSARY BY THE CONTRACTOR TO ENSURE COMPLIANCE WITH EXISTING ORDINANCES.
7. CONTRACTOR SHALL INSPECT THE TESC FACILITIES AT THE END OF EACH WORKING DAY TO ASSURE THAT THEY ARE IN GOOD CONDITION. IF TESC FACILITIES REQUIRE REPAIR/MAINTENANCE, IT SHALL BE PERFORMED PRIOR TO THE END OF THE WORKING DAY. ALL DISTURBED AREAS SHALL BE PROMPTLY AND THOROUGHLY STABILIZED AGAINST EROSION DURING PERIODS OF WET WEATHER WHEN WORK IS NOT BEING PERFORMED AT THE SITE.
8. WHERE EROSION CONTROL MATTING IS UTILIZED, IT SHALL BE APPLIED IN CONFORMANCE TO THE MANUFATURER'S RECOMMENDATIONS.
9. TEMPORARY FILTER FABRIC FENCE SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND FINAL SITE STABILIZATION IS IN PLACE AND FUNCTIONAL. LOCATION OF FILTER FABRIC FENCE SHOWN IS APPROXIMATE AND SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL APPROPRIATE MEASURES NEEDED (STREET SWEEPERS, WATER TRUCKS, ETC.) TO KEEP STREETS AND ROADS CLEAN AND FREE FROM DEBRIS, MUD, ETC. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

1"=30'-0" 30 0 30 60
Scale Feet

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

dhughersen Sep 18, 2007 - 4:06pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-02.dwg

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"					PROCESS IIB ZONING PERMIT APPLICATION
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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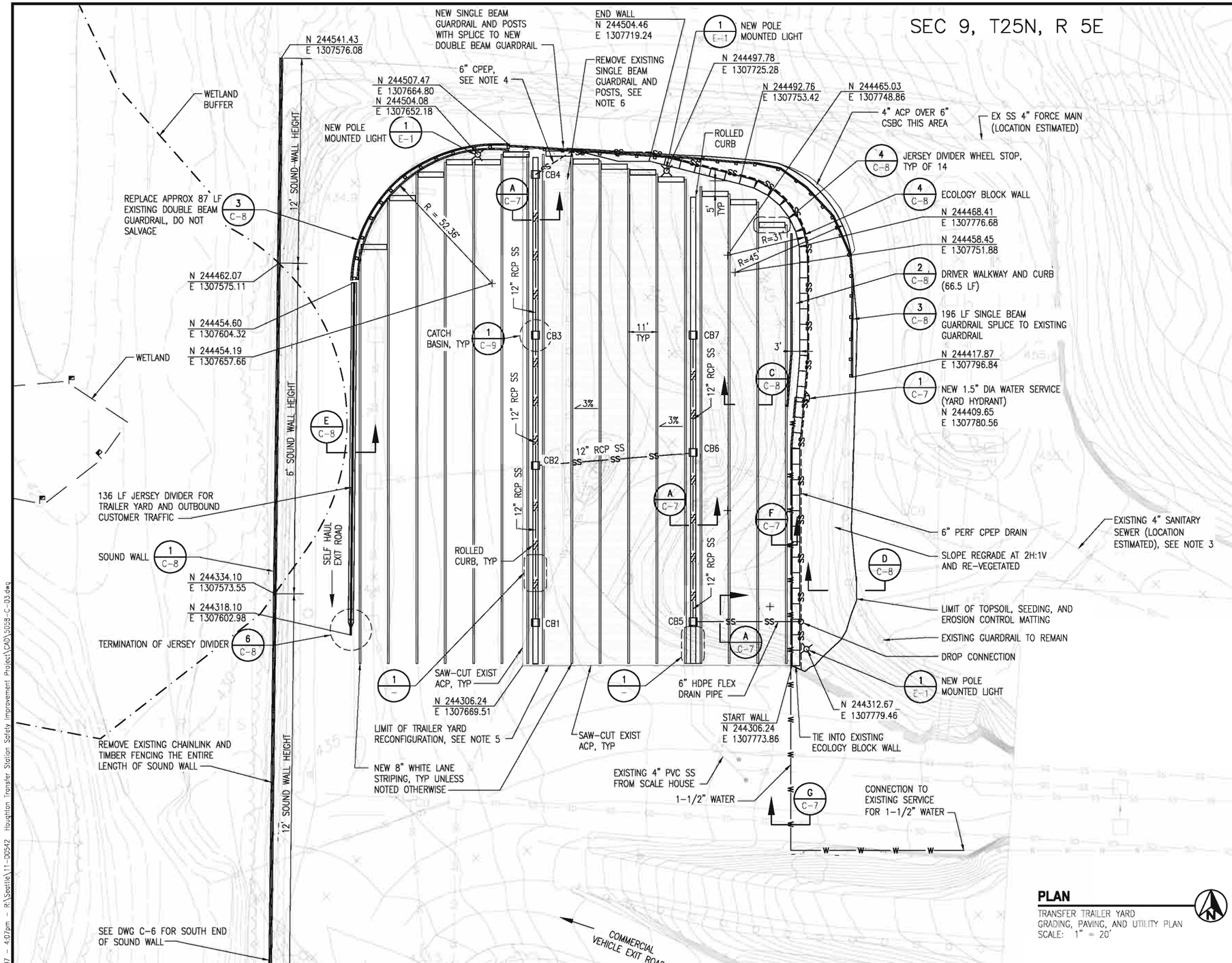
HOUGHTON TRANSFER STATION MITIGATION PROJECT

TEMPORARY EROSION AND SEDIMENT CONTROL PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-2

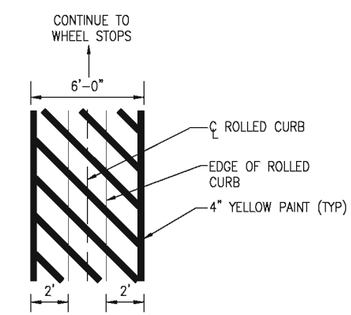


PLAN
TRANSFER TRAILER YARD
GRADING, PAVING, AND UTILITY PLAN
SCALE: 1" = 20'

GENERAL NOTES

1. INVERTS LISTED FOR CATCH BASINS ARE FOR IN AND OUT OF THE STRUCTURE.
2. EXISTING SANITARY SEWER TO BE TEMPORARILY CAPPED AT THE EAST LIMITS OF CONSTRUCTION. EXISTING LINE WITHIN THE CONSTRUCTION AREA IS TO BE REMOVED AND REPLACED WITH NEW 4" PVC SS LINE TO NEW MH 1.
3. MARK LOCATION OF CPEP IN ORDER TO COORDINATE THE LOCATION OF THE JERSEY BARRIER WHEEL STOP ANCHOR AND NOT DAMAGE PIPE.
4. NEW PAVING USED IN TRANSFER TRAILER YARD RECONFIGURATION TO MATCH THE GRADES OF THE EXISTING ADJACENT PAVEMENT.
5. CONTRACTOR TO REMOVE EXISTING GUARDRAIL, POST AND BLOCKING. CONTRACTOR MAY SALVAGE AS APPROVED BY PROJECT REPRESENTATIVE METAL RAIL AND TIMBER FOR USE AT NORTH SIDE OF TRAILER EXPANSION YARD AND ALONG TRAILER APPROACH ROAD AS INDICATED ON DRAWINGS. SEE NOTE 2/C-4.

CATCHBASIN	NORTHING	EASTING	RIM EL	INVERT (IN)	INVERT (OUT)	SUMP
CB 1	244382.18	1667552.00	437.55	–	431.99	430.49
CB 2	244442.97	1667552.00	438.04	431.38 (FROM 2) 431.38 (FROM 4) 431.30 (FROM EX)	431.30	429.80
CB 3	244493.45	1667552.00	437.73	431.95 (FROM 5)	431.93	430.43
CB 4	244555.65	1667552.00	438.06	434.50 (DRAIN)	432.50	431.00
CB 5	244382.56	1667613.00	439.38	436.47 (DRAIN)	433.97	432.47
CB 6	244448.04	1667613.00	439.88	430.64 (FROM 3) 433.32 (FROM 6) 433.70 (FROM 8) 435.97 (FROM EX SS)	430.40	428.90
CB 7	244493.45	1667613.00	439.56	–	434.15	432.65



TYPICAL PAVEMENT STRIPING AT TWO ROLLED CURB AND GUTTER LINES

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

1"=20'-0" 20 0 20 40
Scale Feet

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"					PROCESS IIB ZONING PERMIT APPLICATION
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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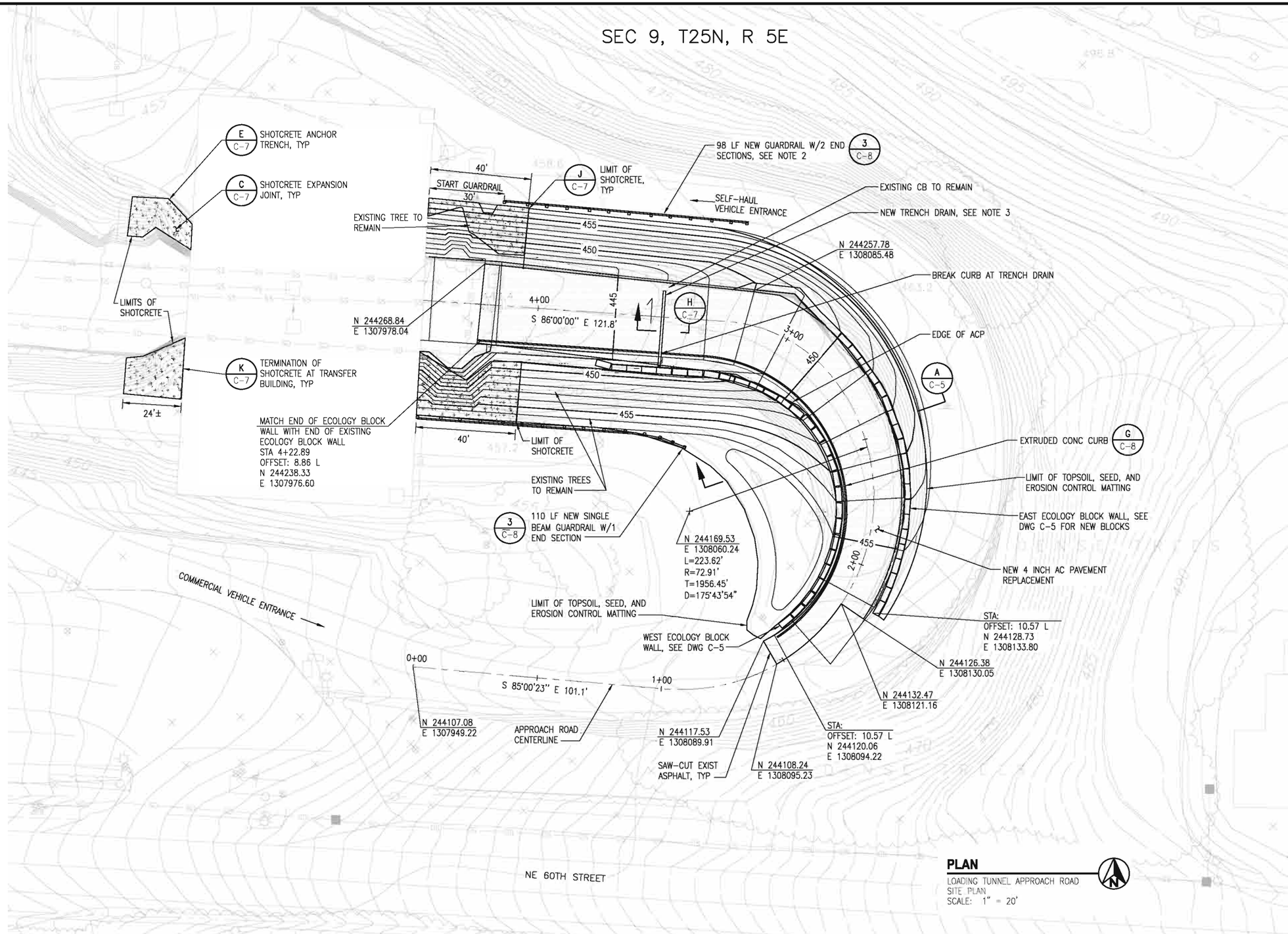
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

TRANSFER TRAILER YARD
GRADING, PAVING, AND UTILITY PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-3

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

dnupcharoen Sep 18, 2007 – 4:07pm – R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5059-C-03.dwg



PLAN
LOADING TUNNEL APPROACH ROAD
SITE PLAN
SCALE: 1" = 20'

1"=20'-0" 20 0 20 40
Scale Feet

GENERAL NOTES

1. EXTRUDED CONCRETE CURB WILL BE PLACED 1.5FT FROM THE FACE OF THE ECOLOGY BLOCK WALL. SEE SECTION A, DRAWING C-5.
2. CONTRACTOR MAY USE METAL RAIL AND TIMBER SALVAGED FROM TRANSFER TRAILER YARD RECONFIGURATION WITH PRIOR APPROVAL FROM PROJECT REPRESENTATIVE. SEE NOTE 5, DWG C-3.
3. DEMOLISH AND REMOVE EXISTING TRENCH DRAIN. INSTALL NEW TREANCH DRAIN AND CONNECT TO EXISTING CB. DISCONTINUE CONCRETE CURB AT TRENCH DRAIN.

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED
DRAWN
VERIFY SCALE
BAR IS ONE INCH ON ANSI "D" DRAWING
0 1"

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
				PROCESS IIB ZONING PERMIT APPLICATION

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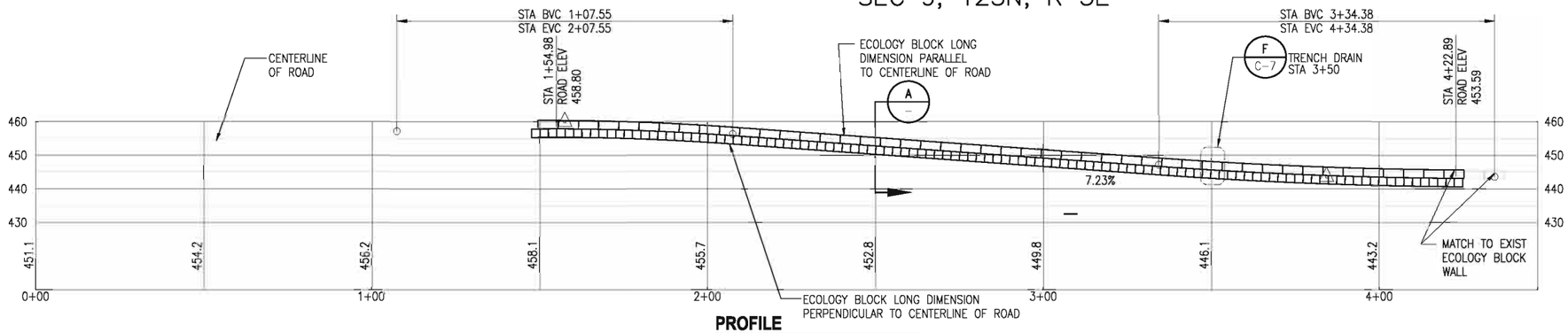
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

LOADING TUNNEL APPROACH ROAD
SITE PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-4

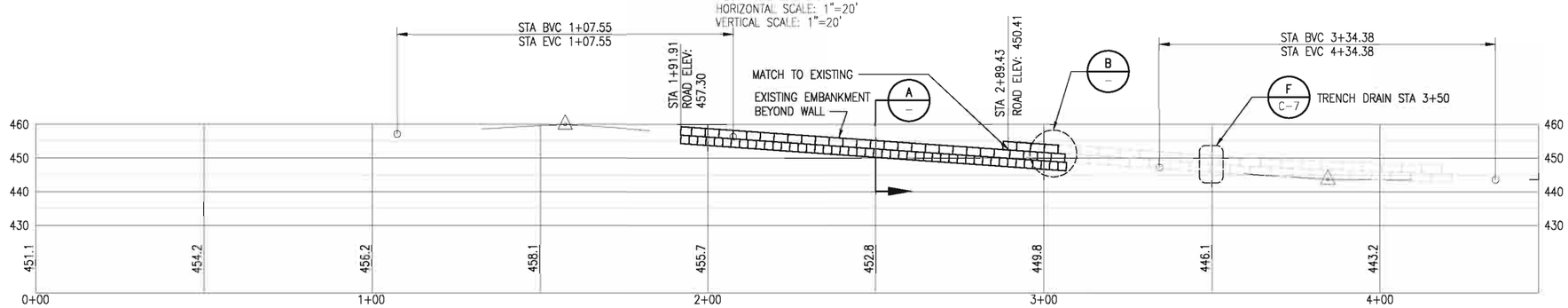
dnupcharoen Sep 18, 2007 - 4:08pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-04.dwg

SEC 9, T25N, R 5E



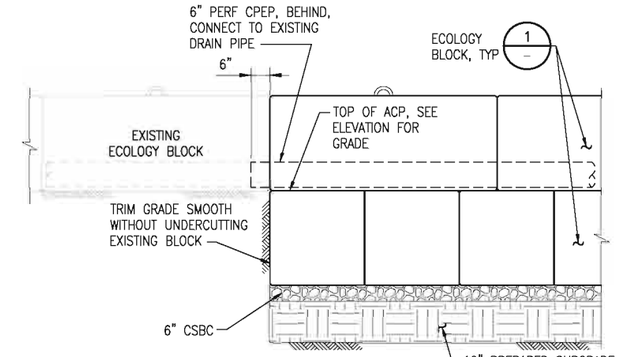
PROFILE

WEST WALL ELEVATION
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=20'



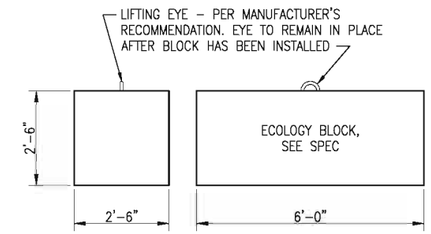
PROFILE

EAST WALL ELEVATION
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=20'



SECTION

TIE-INTO EXISTING BLOCK WALL
SCALE: NONE
B –

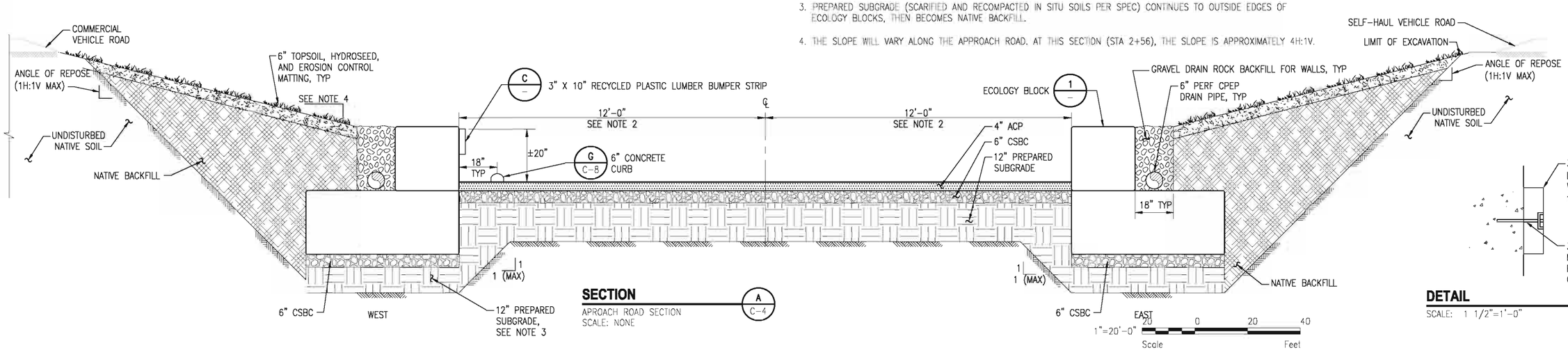


DETAIL

ECOLOGY BLOCK
SCALE: NONE
1 –

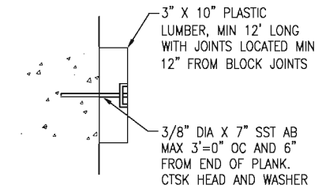
GENERAL NOTES

1. THE VERTICAL ALIGNMENT FOR THE APPROACH ROAD IS BASED ON A SURVEY OF THE EXISTING ROAD. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION ACTIVITIES.
2. DIMENSION FROM CENTERLINE WILL VARY. SEE PLAN DRAWING C-4 FOR HORIZONTAL DIMENSIONS OF ACP.
3. PREPARED SUBGRADE (SCARIFIED AND RECOMPACTED IN SITU SOILS PER SPEC) CONTINUES TO OUTSIDE EDGES OF ECOLOGY BLOCKS, THEN BECOMES NATIVE BACKFILL.
4. THE SLOPE WILL VARY ALONG THE APPROACH ROAD. AT THIS SECTION (STA 2+56), THE SLOPE IS APPROXIMATELY 4H:1V.



SECTION

APROACH ROAD SECTION
SCALE: NONE
A C-4



DETAIL

SCALE: 1 1/2"=1'-0"
C –

DESIGNED				
DRAWN				
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 — 1"	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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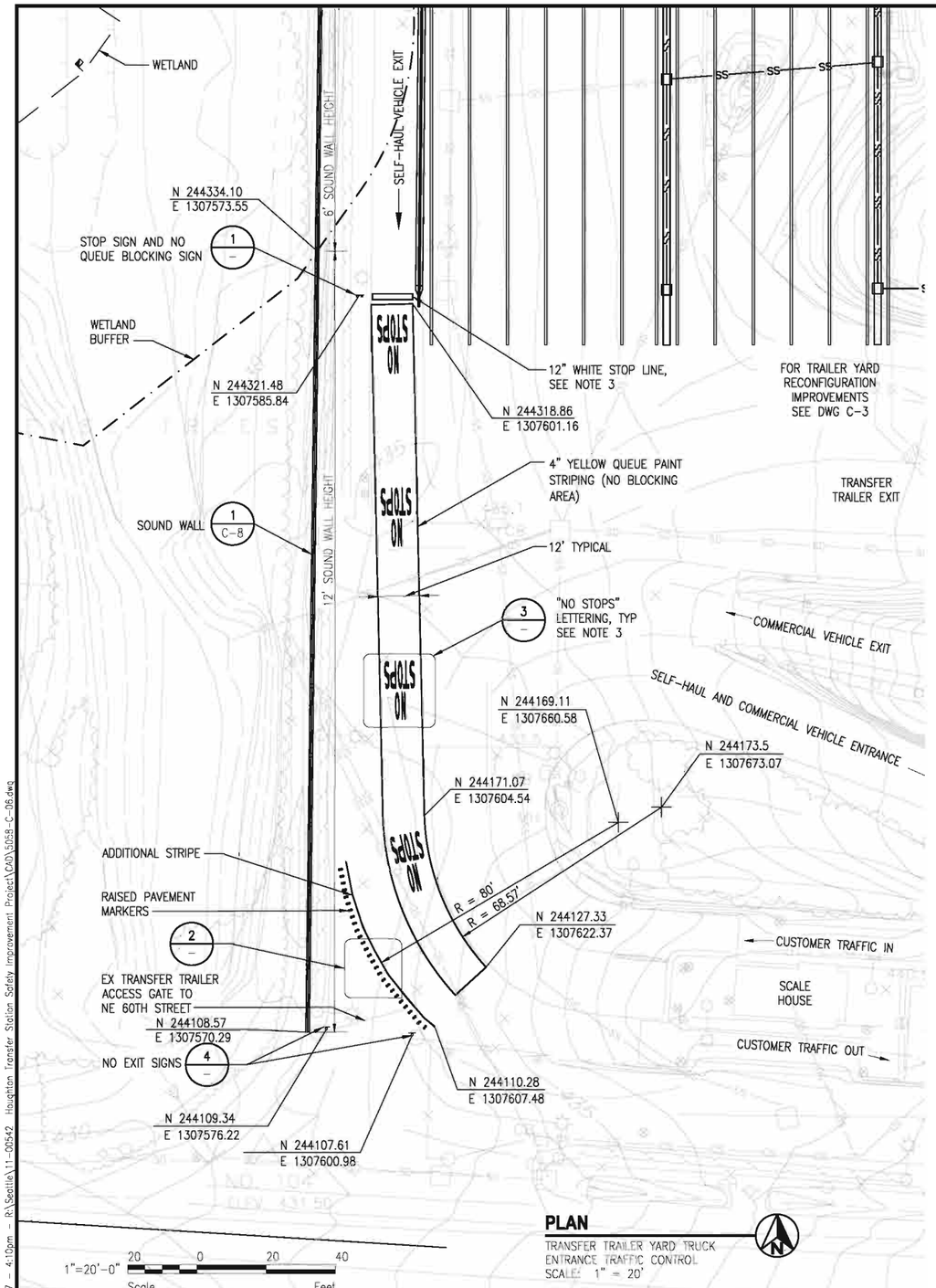
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

LOADING TUNNEL APPROACH ROAD
SECTIONS, ELEVATIONS, AND DETAILS

PROJECT NUMBER: 11-00542-1000
SHT. – OF: 1
DRAWING NUMBER: C-5

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

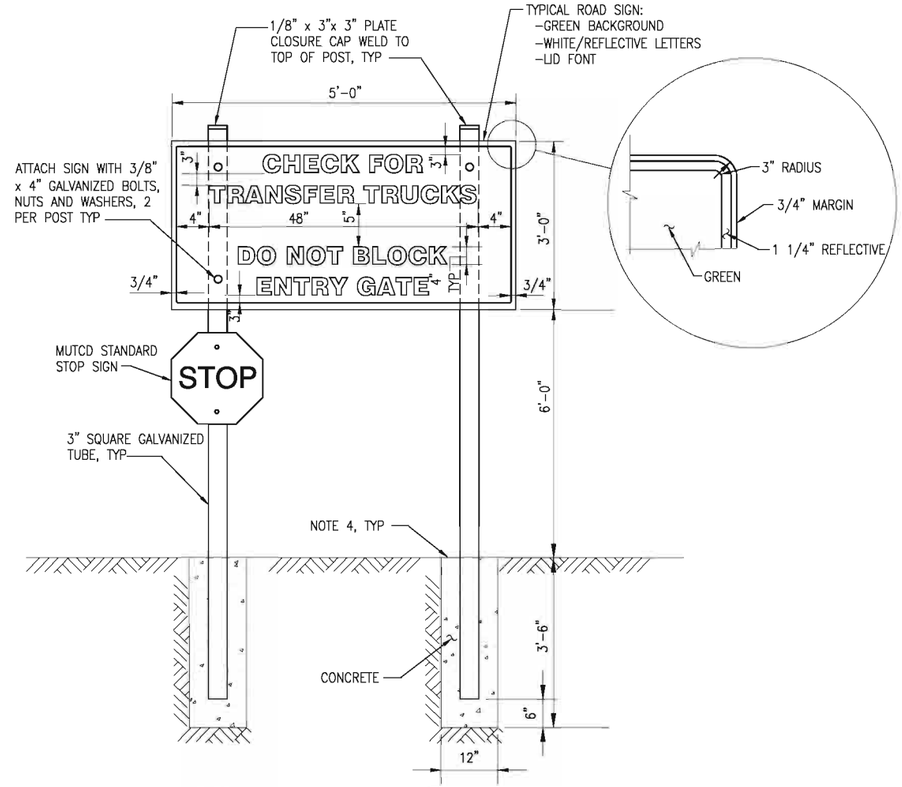
dmuchersen Sep 18, 2007 – 4:08pm – R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-05.dwg



PLAN

TRANSFER TRAILER YARD TRUCK ENTRANCE TRAFFIC CONTROL
SCALE: 1" = 20'

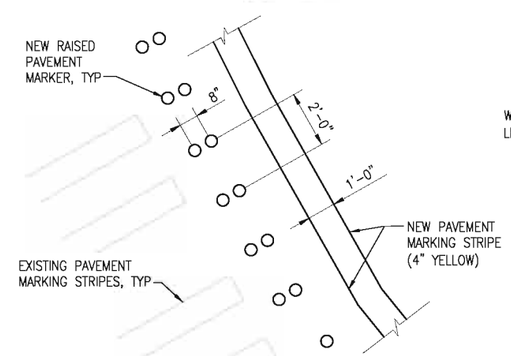
SEC 9, T25N, R 5E



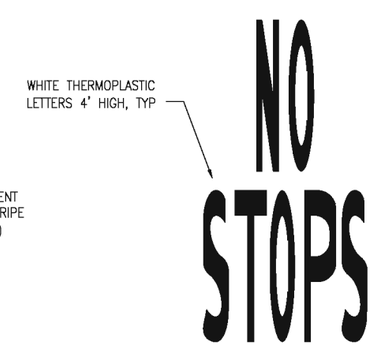
DETAIL 1
QUEUE BLOCKING SIGN
SCALE: NONE

GENERAL NOTES

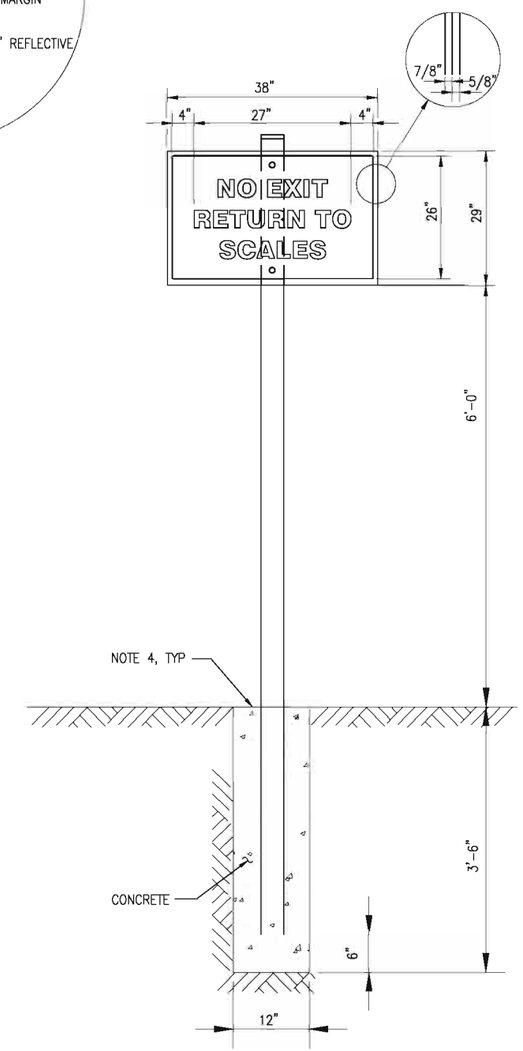
1. TRAFFIC CONTROL SIGN SHALL MEET SPECIFICATIONS OF WSDOT SIGN FABRICATION MANUAL M 55-05.
2. SIGN LETTERING SHALL FOLLOW THE GUIDELINE OF HEIGHT AND SPACING FOR THE 4D FONT AS SPECIFIED IN WSDOT M 55-05.
3. FOR PROPER PROPORTION AND SPACING OF PAVEMENT LETTERING, SEE STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS. AVAILABLE FROM FHWA, HTO-20, WASHINGTON, DC. 20590.
4. CONCRETE BASES FOR POST MOUNTED SIGNS SHALL BE FLUSH WITH THE FINISHED GROUND LEVEL AND SLOPED TO DRAIN AWAY FROM POST.



DETAIL 2
SCALE: NONE



DETAIL 3
"NO STOPS" LETTERING
SCALE: NONE



DETAIL 4
NO EXIT SIGN
SCALE: NONE

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 — 1"					
					PROCESS IIB ZONING PERMIT APPLICATION
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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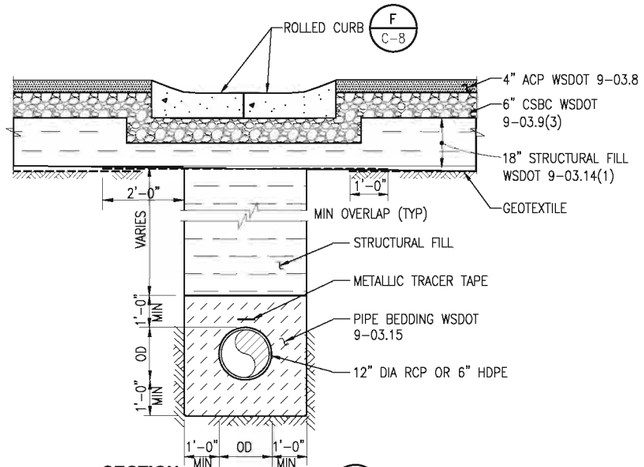
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

TRANSFER TRAILER YARD TRUCK ENTRANCE
TRAFFIC CONTROL PLANS AND DETAILS

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-6

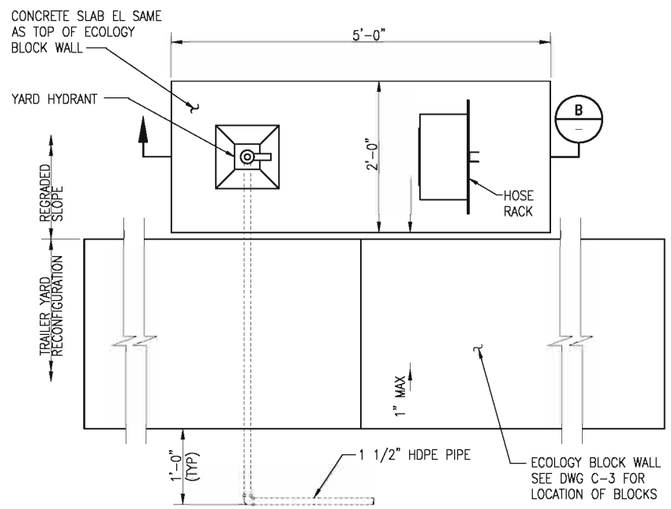
drupchansen Sep 18, 2007 – 4:10pm – R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-06.dwg

SEC 9, T25N, R 5E



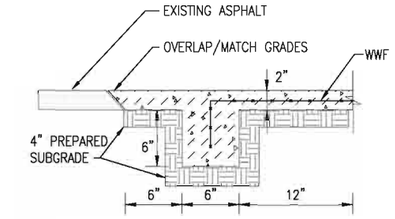
SECTION A C-3

TRENCH SECTION EX TRAILER YARD EXPANSION, STA 0+00 TO STA 0+95
SCALE: NONE



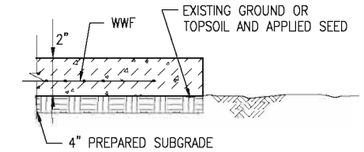
DETAIL 1 C-3

TRAILER YARD RECONFIGURATION AREA YARD HYDRANT
SCALE: NONE



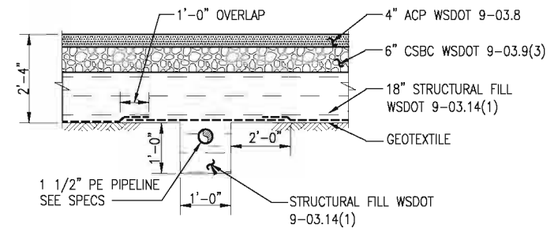
DETAIL E C-4

ANCHOR TRENCH
SCALE: 1 1/2"=1'-0"



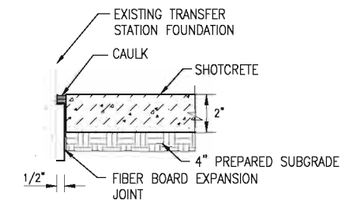
SECTION J C-4

TERMINATION OF APPLIED SHOTCRETE
SCALE: 3"=1'-0"



SECTION F C-3

WATER SUPPLY PIPE TRAILER YARD RECONFIGURATION AREA
SCALE: NONE

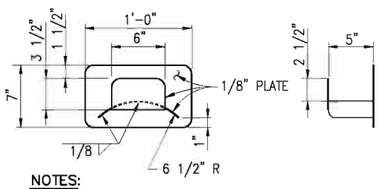


NOTE:

1. 6" TYPICAL FIBER BOARD EXPANSION JOINT TO BE CUT IN HALF PRIOR TO PLACEMENT.

SECTION K C-4

CONNECTION AT EXISTING TRANSFER STATION BUILDING
SCALE: 3"=1'-0"

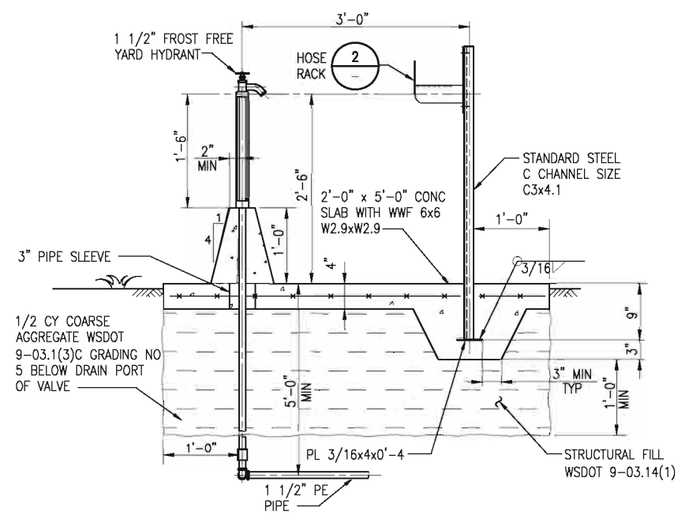


NOTES:

1. ROUND ALL CORNERS AT 1" RADIUS.
2. GRIND ALL EDGES SMOOTH.
3. GALVANIZE UNIT AFTER FABRICATION.
4. MOUNT RACK APPROX 3'-6" ABOVE FLOOR.
5. ATTACH TO POST WITH 2-1/4" 5.EXP BOLTS.

DETAIL 2 –

HOSE RACK
SCALE: NTS

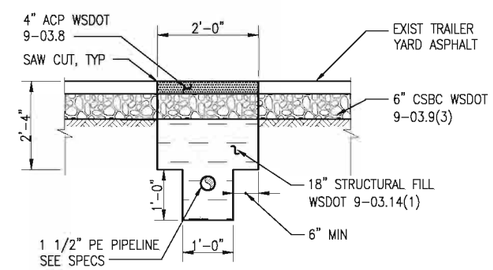


SECTION B –

TRAILER YARD RECONFIGURATION AREA YARD HYDRANT
SCALE: NONE

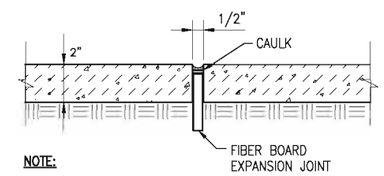
NOTE:

1. PROVIDE 50 FEET OF 1 1/2" HOSE WITH NOZZLE, AT YARD HYDRANT.



SECTION G C-3

WATER SUPPLY PIPE EXISTING TRAILER YARD
SCALE: NONE

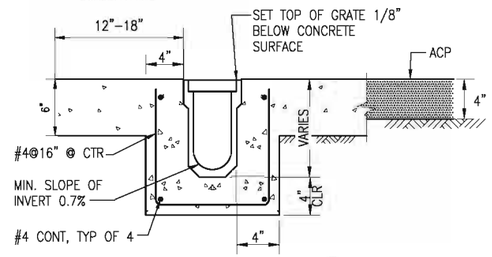


NOTE:

1. EXPANSION JOINT TO BE PLACED EVERY _____ FEET STARTING AT THE EXISTING TRANSFER STATION.

SECTION C C-4

EXPANSION JOINT
SCALE: 3"=1'-0"



SECTION H C-4

TYPICAL TRENCH DRAIN SECTION
SCALE: NONE

1-1/2"=1'-0" 12" 9" 6" 3" 0 1 Scale Feet

3"=1'-0" 3" 6" 9" 1 Scale Feet

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 — 1"					

King County
Department of Natural Resources and Parks
Solid Waste Division

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1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

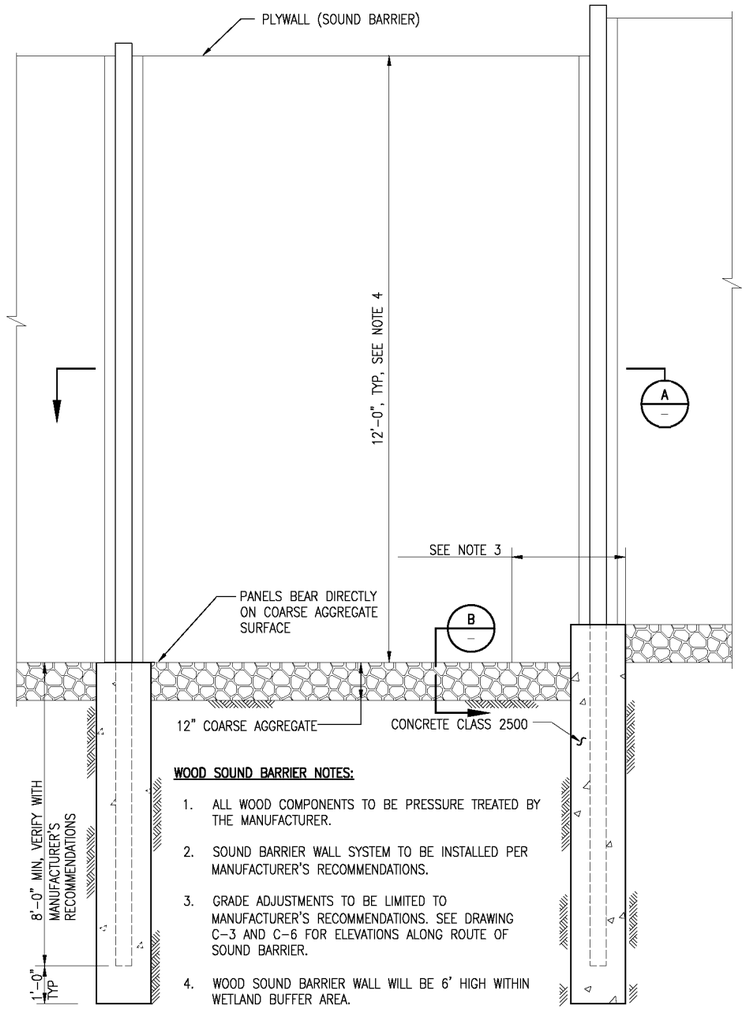
HOUGHTON TRANSFER STATION MITIGATION PROJECT

MISCELLANEOUS CIVIL DETAILS
SHEET 1

PROJECT NUMBER: 11-00542-1000
SHT. – OF: 1
DRAWING NUMBER: C-7

drupchsrgen Sep 18, 2007 - 4:10pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5059_C-07.dwg

SEC 9, T25N, R 5E

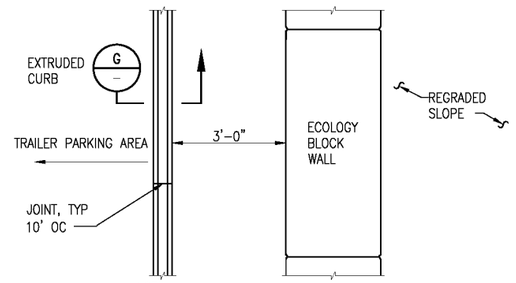


WOOD SOUND BARRIER NOTES:

1. ALL WOOD COMPONENTS TO BE PRESSURE TREATED BY THE MANUFACTURER.
2. SOUND BARRIER WALL SYSTEM TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. GRADE ADJUSTMENTS TO BE LIMITED TO MANUFACTURER'S RECOMMENDATIONS. SEE DRAWING C-3 AND C-6 FOR ELEVATIONS ALONG ROUTE OF SOUND BARRIER.
4. WOOD SOUND BARRIER WALL WILL BE 6' HIGH WITHIN WETLAND BUFFER AREA.

DETAIL 1/C-3 1/C-6
SOUND WALL SECTION
SCALE: 1/2"=1'-0"

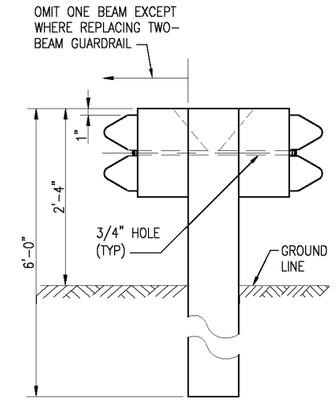
1-1/2"=1'-0" 12" 9" 6" 3" 0 1 Scale Feet

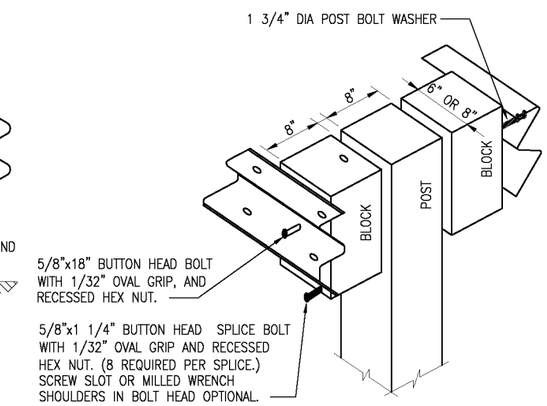


NOTE:

1. ANCHOR CURBS WITH TIE BARS OR EPOXY ADHESIVE.

DETAIL 2/C-3
TYPICAL DRIVER'S WALKWAY AND CURB PLAN
SCALE: NONE

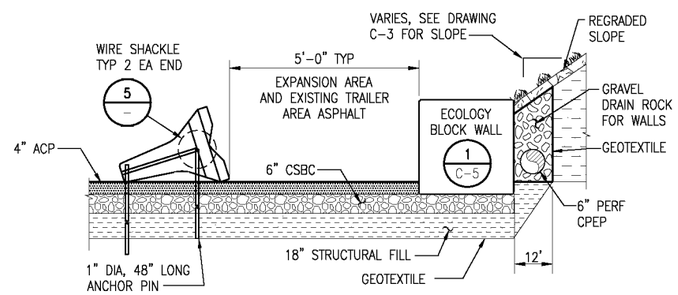




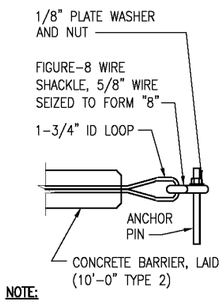
NOTES:

1. GUARDRAILS AND POSTS ARE TO BE AS SHOWN IN THE WSDOT STANDARD PLANS (DWG C-1, TYPE 4) AND AS DETAILED IN THE WSDOT STANDARD SPECIFICATIONS (SECTION 8-11).
2. TERMINATIONS AND END TREATMENTS SHALL BE AS SHOWN ON THE WSDOT STANDARD PLAN C-7 DESIGN B.

DETAIL 3/C-3 3/C-4
GUARDRAIL ASSEMBLY
SCALE: NONE



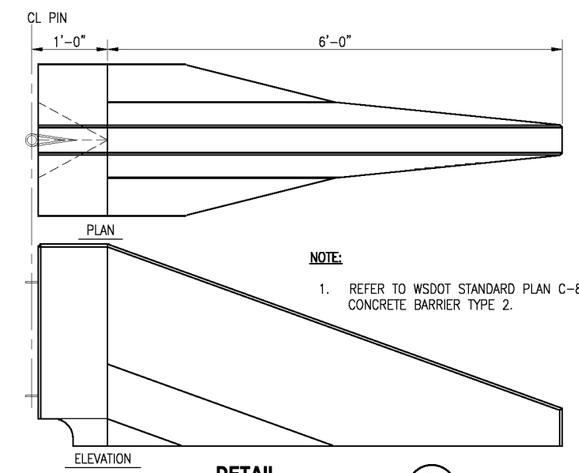
DETAIL 4/C-3
CONCRETE BARRIER WHEEL STOP AND ECOLOGY BLOCK WALL
SCALE: NONE



NOTE:

1. REFER TO WSDOT STANDARD PLAN C-8 FOR CONCRETE BARRIER, TYP 2.

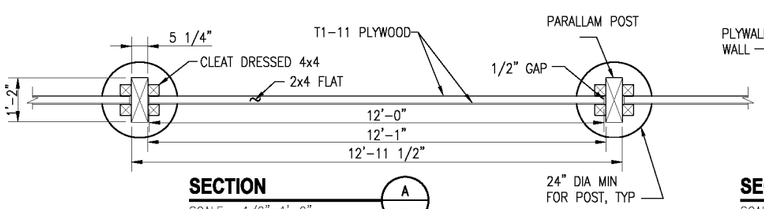
DETAIL 5/—
CONCRETE BARRIER WHEEL STOP ANCHOR
SCALE: NONE



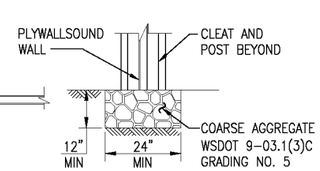
NOTE:

1. REFER TO WSDOT STANDARD PLAN C-8, CONCRETE BARRIER TYPE 2.

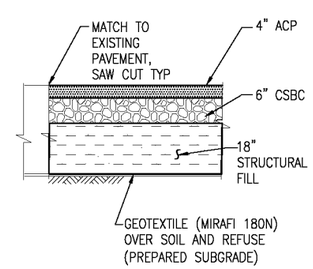
DETAIL 6/C-3
TERMINATION OF JERSEY DIVIDER
SCALE: NONE



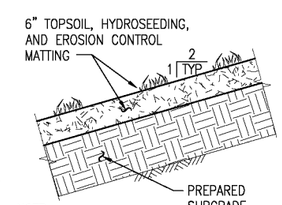
SECTION A/—
SCALE: 1/2"=1'-0"



SECTION B/—
SCALE: 1/2"=1'-0"



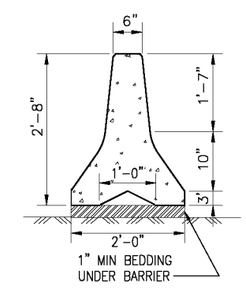
SECTION C/C-3
TYPICAL PAVING SECTION FOR YARD RECONFIGURATION
SCALE: NONE



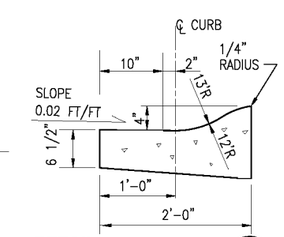
NOTE:

1. THE SLOPE WILL VARY AT DIFFERENT LOCATIONS ON THE PROJECT, SEE DRAWINGS C-3 AND C-4.

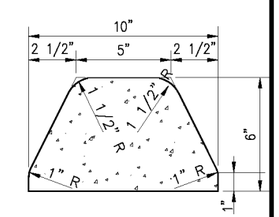
SECTION D/C-3
REVEGETATED SLOPE
SCALE: NONE



DETAIL E/C-3
CONCRETE BARRIER-TYP 2
SCALE: NONE



DETAIL F/C-3
TYPICAL ROLLED CURB
SCALE: NONE



DETAIL G/C-5
CONCRETE EXTRUDED CURB
SCALE: NONE

DESIGNED				
DRAWN				
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 — 1"	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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Department of Natural Resources and Parks
Solid Waste Division

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Seattle, WA 98154-1004
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HOUGHTON TRANSFER STATION
MITIGATION PROJECT

MISCELLANEOUS CIVIL DETAILS
SHEET 2

PROJECT NUMBER: 11-00542-1000
SHT. — OF: 1
DRAWING NUMBER: C-8

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

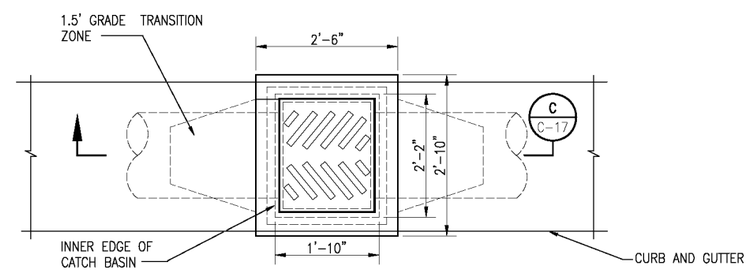
dnupchareen Sep 18, 2007 - 4:11pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-08.dwg

SEC 9, T25N, R 5E

GENERAL NOTES

1. VERIFY THAT ALL ELECTRICAL CIRCUITS AND SERVICES RELATED TO THE PUMP STATION HAVE BEEN DE-ENERGIZED AND LOCKED OUT, PRIOR TO WORK BEING DONE.

2. GRATING SHALL BE GALVANIZED STEEL WITH 1 1/2" x 3/16" BEARING BARS AT 1 3/16" SPACING, BANDED EDGES AT OPENING FOR PIPE, WITH L 1/4"x1 1/2"x1 1/2" CONTINUOUS GALVANIZED PERIMETER SUPPORT. PROVIDING AN ALLOWABLE LOAD CAPACITY OF 100 LB/SF. SECURE SUPPORT ANGLES TO WALL WITH 1/4" DIA x 3" SST EXP. AB @ 12" OC.



DETAIL 1 / C-3

TRAILER YARD EXPANSION AREA CATCH BASIN PLAN
SALE: NONE

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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Solid Waste Division

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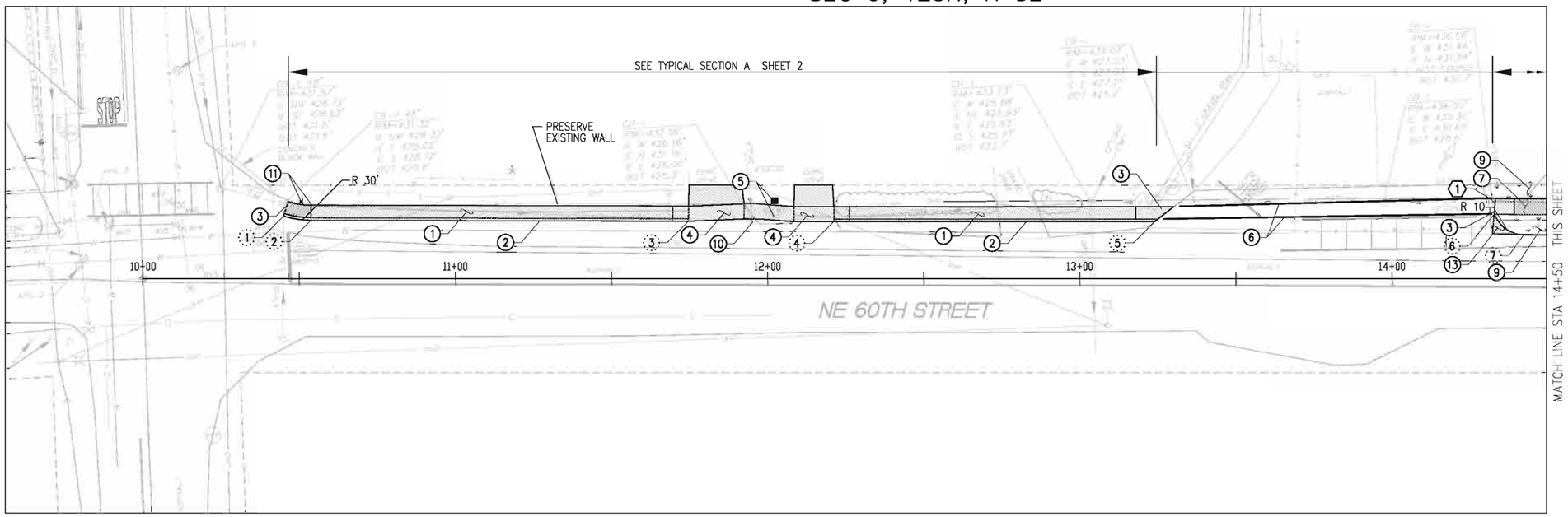
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

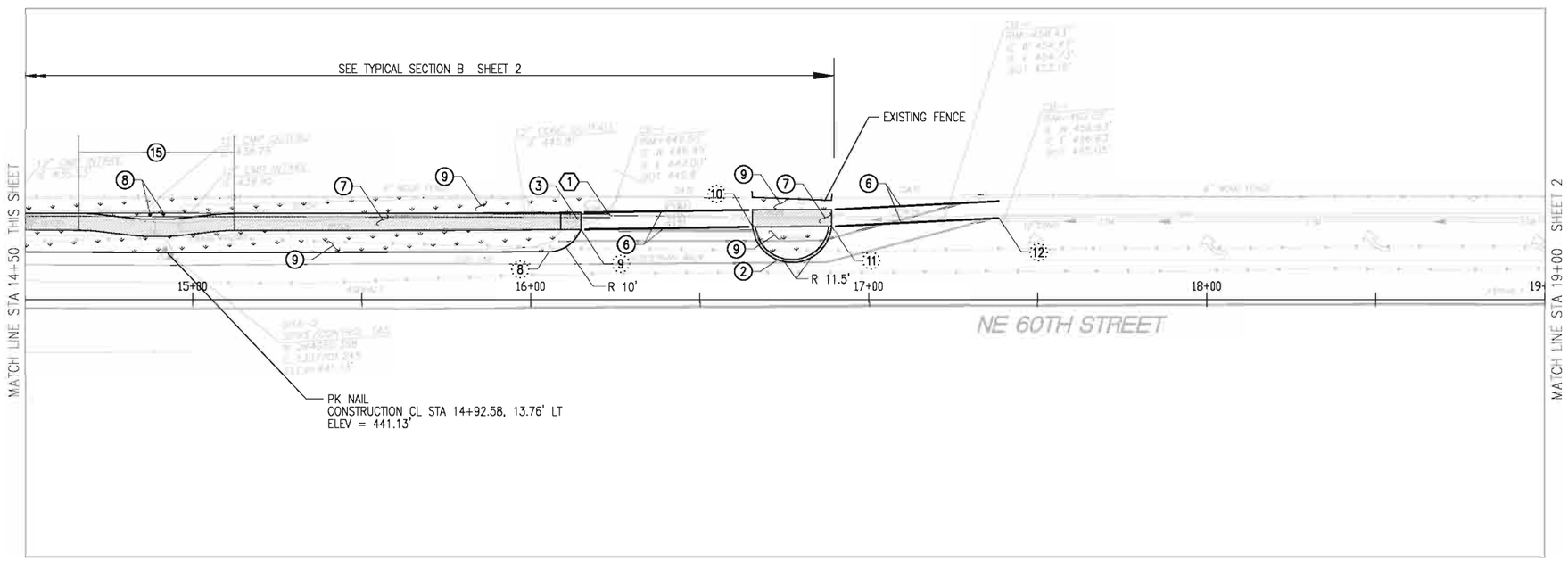
MISCELLANEOUS CIVIL DETAILS
SHEET 3

PROJECT NUMBER: 11-00542-1000
SHT. – OF: 1
DRAWING NUMBER: C-9

dnupcharoen Sep 18, 2007 - 4:12pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-09.dwg

SEC 9, T25N, R 5E





CONSTRUCTION NOTES

1. CONSTRUCT 4' WIDE HMA PATH PER DETAIL SHEET 2.
2. INSTALL EXTRUDED CURB PER PREAPPROVED PLAN CK-R.19.
3. PROVIDE 6' HMA RAMP TO MATCH EXISTING GRADE.
4. PROVIDE 6' HMA DRIVEWAY RAMP TO MATCH EXISTING DRIVEWAY GRADE. REMOVE AND RECONSTRUCT HMA DRIVEWAY TO MATCH EXISTING CONCRETE DRIVEWAY PER PREAPPROVED PLAN CK-R.14.
5. RELOCATE MAILBOX(ES).
6. INSTALL 8" THERMOPLASTIC CROSSWALK STRIPE WITH 6' SEPARATION. REMOVE EXISTING CONFLICTING CROSSWALK STRIPE.
7. INSTALL 5' HMA WIDE PATH PER DETAIL SHEET 2.
8. INSTALL FIRE HYDRANT GUARD POST PER PREAPPROVED PLAN CK-W.13.
9. INSTALL 4" TOPSOIL AND HYDROSEED AREA PER TYPICAL SECTION, SHEET 2.
10. ADJUST 4' HMA PATH AROUND EXISTING CATCH BASIN.
11. RELOCATE EXISTING SIGN PER PREAPPROVED PLAN CK-R.43.
12. INSTALL THICKENED EDGE PER PREAPPROVED PLAN CK-R.14.
13. INSTALL HMA PATCH PER PREAPPROVED PLAN CK-R.14.
14. INSTALL 30' HYDROSEEDED BERM PER DETAIL SHEET 2.
15. ADJUST 5' HMA PATH AROUND FIRE HYDRANT GUARD POSTS.
16. INSTALL 7' WIDE HMA PATH PER DETAIL SHEET 2. MATCH EXISTING PATH.

DRAINAGE NOTES

1. INSTALL 12" DI PIPE TO CONNECT TO EXISTING CATCH BASIN. REMOVE EXISTING CMP PIPE. FILL IN EXISTING DITCH WITH GRAVEL OR SUITABLE NATIVE BACKFILL.

PLAN

PATHWAY & DRAINAGE
SCALE: 1" = 20'

1"=20'-0" 20 0 20 40
Scale Feet

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"					Process IIB Zoning Permit Application
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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Department of Natural Resources and Parks
Solid Waste Division

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Seattle, WA 98154-1004
(206) 695-4700

KPG
753 9th Avenue North
Seattle, WA 98109
(206) 286-1640

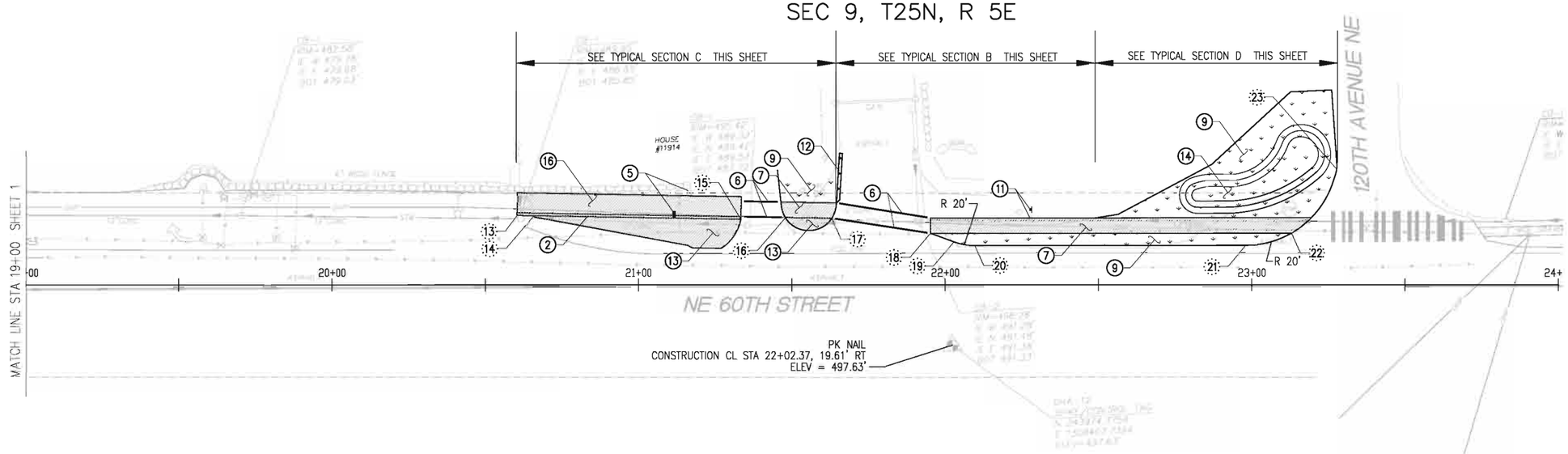
HOUGHTON TRANSFER STATION
MITIGATION PROJECT

PEDESTRIAN PATHWAY PLAN
SHEET 1

PROJECT NUMBER: 11-00542-1000
SHT. 1 OF: 2
DRAWING NUMBER: C-11

drupcharoen Sep 18, 2007 - 4:16pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\From KPG\Frontage - Draft 3 - 091807\0609PLN01.dwg

SEC 9, T25N, R 5E

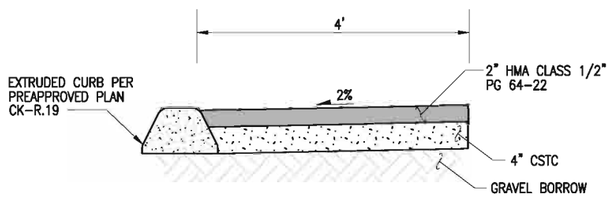


CONSTRUCTION NOTES

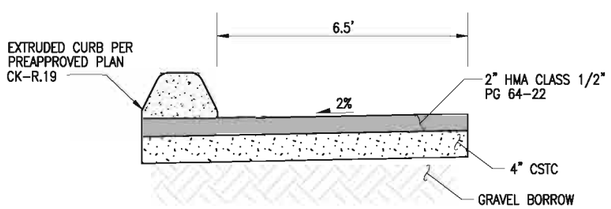
1. CONSTRUCT 4' WIDE HMA PATH PER DETAIL SHEET 2.
2. INSTALL EXTRUDED CURB PER PREAPPROVED PLAN CK-R.19.
3. PROVIDE 6' HMA RAMP TO MATCH EXISTING GRADE.
4. PROVIDE 6' HMA DRIVEWAY RAMP TO MATCH EXISTING DRIVEWAY GRADE. REMOVE AND RECONSTRUCT HMA DRIVEWAY TO MATCH EXISTING CONCRETE DRIVEWAY PER PREAPPROVED PLAN CK-R.14.
5. RELOCATE MAILBOX(ES).
6. INSTALL 8" THERMOPLASTIC CROSSWALK STRIPE WITH 6' SEPARATION. REMOVE EXISTING CONFLICTING CROSSWALK STRIPE.
7. INSTALL 5' HMA WIDE PATH PER DETAIL SHEET 2.
8. INSTALL FIRE HYDRANT GUARD POST PER PREAPPROVED PLAN CK-W.13.
9. INSTALL 4" TOPSOIL AND HYDROSEED AREA PER TYPICAL SECTION, SHEET 2.
10. ADJUST 4' HMA PATH AROUND EXISTING CATCH BASIN.
11. RELOCATE EXISTING SIGN PER PREAPPROVED PLAN CK-R.43.
12. INSTALL THICKENED EDGE PER PREAPPROVED PLAN CK-R.14.
13. INSTALL HMA PATCH PER PREAPPROVED PLAN CK-R.14.
14. INSTALL 30' HYDROSEEDED BERM PER DETAIL SHEET 2.
15. ADJUST 5' HMA PATH AROUND FIRE HYDRANT GUARD POSTS.
16. INSTALL 7' WIDE HMA PATH PER DETAIL SHEET 2. MATCH EXISTING PATH.

DRAINAGE NOTES

1. INSTALL 12" DI PIPE TO CONNECT TO EXISTING CATCH BASIN. REMOVE EXISTING CMP PIPE. FILL IN EXISTING DITCH WITH GRAVEL OR SUITABLE NATIVE BACKFILL.

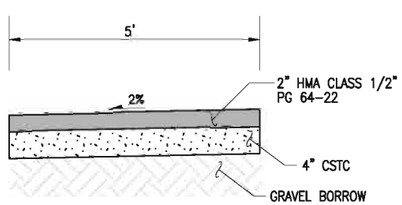


4' WIDE HMA PATH WITH EXTRUDED CURB DETAIL
NTS

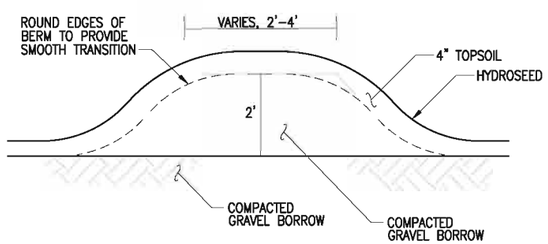


HMA PATH WITH EXTRUDED CURB DETAIL
NTS

CONSTRUCTION CENTERLINE POINTS TABLE			
	STATION	OFFSET	DESCRIPTION
1	10+45.05	20.11' LT	FACE OF CURB
2	10+53.85	18.76' LT	FACE OF CURB
3	11+74.71	18.42' LT	FACE OF CURB
4	12+21.26	18.27' LT	FACE OF CURB
5	13+23.99	18.30' LT	FACE OF CURB
6	14+32.76	20.65' LT	EDGE OF PATH
7	14+42.25	14.10' LT	SAWCUT, PVMT EDGE
8	16+05.43	14.20' LT	SAWCUT, PVMT EDGE
9	16+14.92	20.75' LT	EDGE OF PATH
10	16+65.67	21.52' LT	EDGE OF PATH
11	16+89.02	21.64' LT	EDGE OF PATH
12	17+38.59	24.09' LT	END CHANNELIZATION
13	20+60.36	22.69' LT	FACE OF CURB
14	20+65.91	22.59' LT	SAWCUT, PVMT EDGE
15	21+33.36	21.43' LT	FACE OF CURB
16	21+47.81	22.01' LT	EDGE OF PATH
17	21+63.03	21.75' LT	EDGE OF PATH
18	21+95.19	16.83' LT	EDGE OF PATH
19	22+02.85	14.03' LT	SAWCUT, PVMT EDGE
20	22+09.69	12.81' LT	SAWCUT, PVMT EDGE
21	22+98.00	12.89' LT	SAWCUT, PVMT EDGE
22	23+12.97	16.90' LT	EDGE OF PATH
23	23+27.71	39.61' LT	SAWCUT, PVMT EDGE

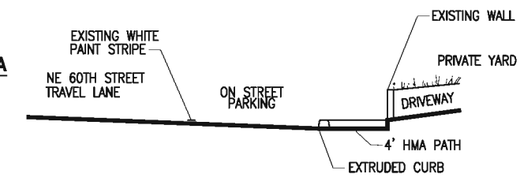


HMA PATH DETAIL
NTS

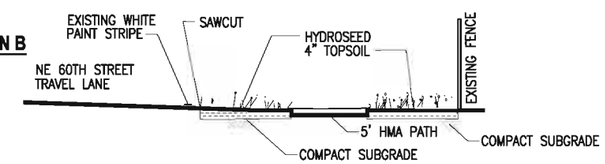


HYDROSEEDED BERM DETAIL
NTS

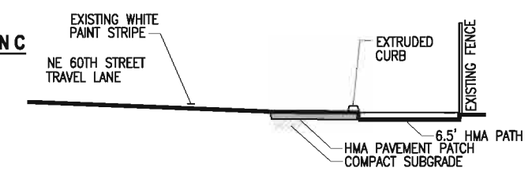
TYPICAL SECTION A
NTS



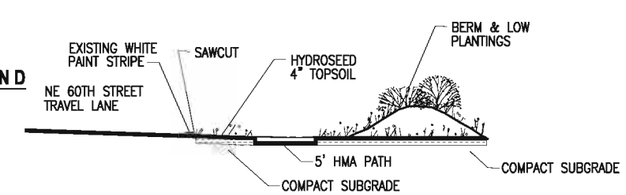
TYPICAL SECTION B
NTS



TYPICAL SECTION C
NTS



TYPICAL SECTION D
NTS



PLAN
PATHWAY & DRAINAGE
SCALE: 1" = 20'

1"=20'-0" 20 0 20 40
Scale Feet

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 1"					Process IIB Zoning Permit Application
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

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HOUGHTON TRANSFER STATION
MITIGATION PROJECT

PEDESTRIAN PATHWAY PLAN
SHEET 2

PROJECT NUMBER: 11-00542-1000
SHT. 2 OF: 2
DRAWING NUMBER: C-12

drupchoresen Sep 18, 2007 - 4:17pm R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\Front KPG\Frontage Draft 3 - 091807\C0909P-N02.dwg

PLAN
FINAL EROSION AND SEDIMENT CONTROL
SCALE: 1" = 30'

GENERAL NOTES

1. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AFTER HYDROSEED IS PLACED.

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

dnupcharoen Sep 18, 2007 - 4:13pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-C-13.dwg

DESIGNED

DRAWN

VERIFY SCALE
BAR IS ONE INCH ON ANSI "D" DRAWING
0 1"

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
				PROCESS IIB ZONING PERMIT APPLICATION

King County
Department of Natural Resources and Parks
Solid Waste Division

R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

HOUGHTON TRANSFER STATION
MITIGATION PROJECT

FINAL EROSION AND
SEDIMENT CONTROL PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: C-13

GENERAL NOTES

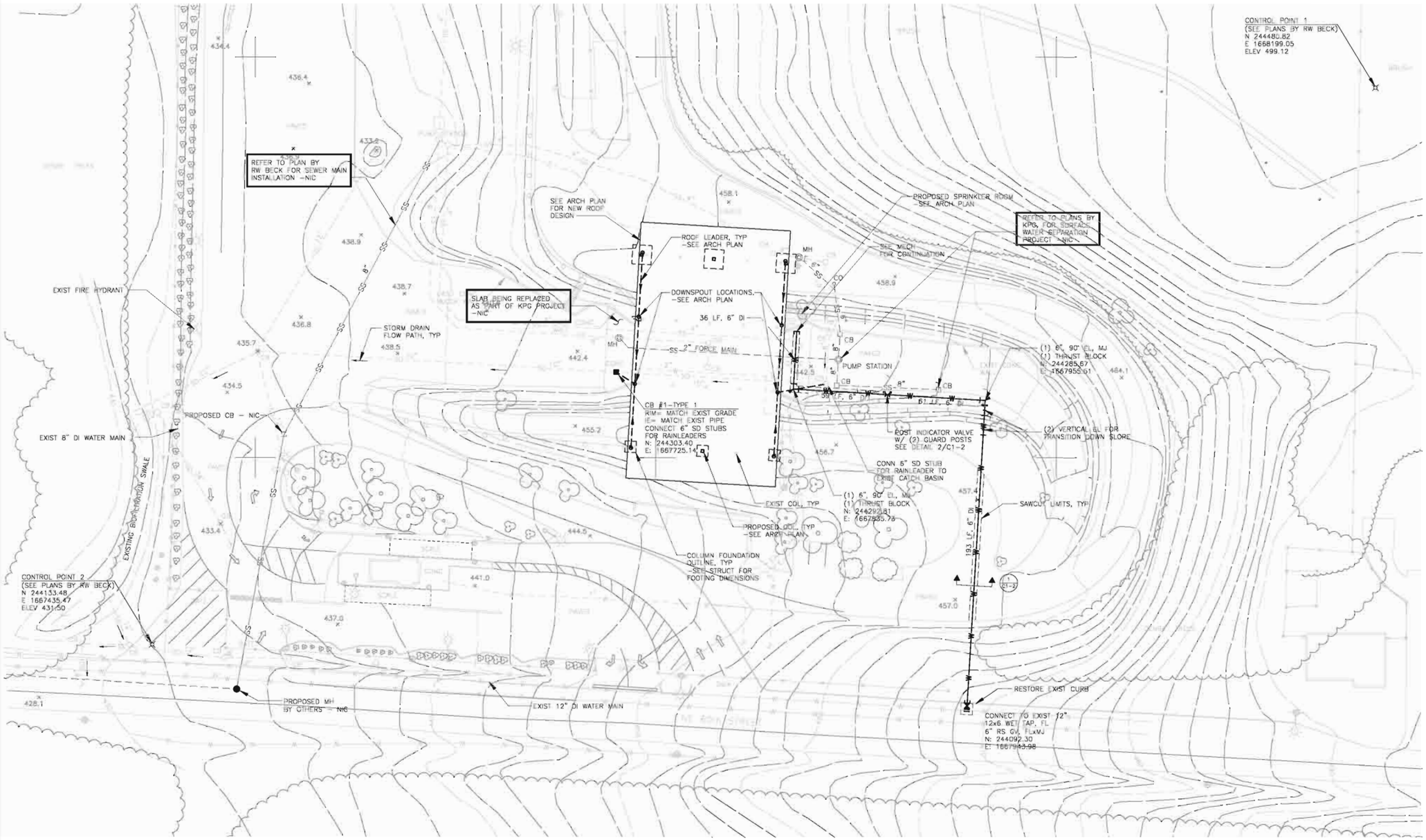
1. UTILITY LOCATION IS BASED ON INFORMATION PROVIDED BY KING COUNTY SOLID WASTE. VERIFY LOCATIONS AND ELEVATIONS OF STRUCTURES PRIOR TO BEGINNING OF CONSTRUCTION.
2. SURVEY WAS PERFORMED BY DEGROSS AERIAL MAPPING AND SUPPLIED BY KING COUNTY SOLID WASTE. ADDITIONAL UTILITIES HAVE BEEN ADDED BASED ON OTHER DOCUMENTS, SUPPLIED BY KING COUNTY.

LEGEND

EXISTING	PROPOSED	
		PIPE FLOW PATH
	SD	STORM DRAIN
		DOWNSPOUT
	SS	SEWER MAIN
	W	WATER MAIN
		CATCHBASIN
		STORM OR SEWER MANHOLE
		CLEANOUT
	E	ELECTRICAL LINE
		COLUMN AND FOOTING

LAYOUT TABLE

POINT NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
CONTROL PT 1	HAIR 5 (SEE PLANS BY RW BECK)	244480.82	1668199.05	499.12
CONTROL PT 2	HAIR 6 (SEE PLANS BY RW BECK)	244133.48	1667435.47	431.50



THOMAS D. PITTSFORD
STATE OF WASHINGTON
20393
REGISTERED PROFESSIONAL ENGINEER
EXPIRES

ANDERSEN BJORNSTAD KANE JACOBS, INC
CONSULTING ENGINEERS
SOUTH 144TH AVENUE
SEATTLE, WASHINGTON
98168-3103
PHONE 206-243-3333
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E-MAIL: ABKJ@ABKJ.COM

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C29001C
SAFETY IMPROVEMENTS

REVISIONS		
12/14/01	COST ESTIMATE SET	
01/02/02	95% SUBMITTAL	

DIRECTORY/PROJECT No: 95159.00
DWG FILE: HOUGHN97.DWG
PLOTTED: 01/02/02
☐ PLAN & CHECK WORK IN THIS FIELD IS THE RESPONSIBILITY OF THE ENGINEER. DO NOT MAKE ADDITIONAL CHANGES TO THE DRAWINGS.

PROJECT: HOUGHTON TRANSFER STATION ROOF REPLACEMENT PROJECT

CONTENTS: HOUGHTON SITE PLAN

PROJECT No 95159.00
DESIGNED JRP
DRAWN DGA
CHECKED JRP
DATE DEC 14, 2001

SHEET No C1-1

WATER – PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.

2. ALL WATER MAIN WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT AWWA, WSDOT, AND APWA STANDARD SPECIFICATIONS, AS AMENDED BY THE CITY OF KIRKLAND.

3. THE WATER MAIN SHALL BE CLASS 52 DUCTILE IRON PIPE CONFORMING TO ANSI/AWWA C151/A21.51-86 OR THE MOST RECENT REVISION. THE PIPE SHALL BE 1/16" CEMENT LINED AND SEALED IN ACCORDANCE WITH ANSI/AWWA C104/A21.4-90. THE CAST IRON OR DUCTILE IRON PIPE FITTINGS SHALL BE CLASS 250 AS PER ANSI/AWWA C110/A21.10-82. PIPE BEDDING SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. THE MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 36" AND A MAXIMUM COVER OF 60". ANY DEVIATIONS FROM THIS MUST BE APPROVED BY THE CITY OF KIRKLAND PRIOR TO CONSTRUCTION.

4. CONCRETE BLOCKING FOR WATER MAINS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH AWWA AND CITY OF KIRKLAND SPECIFICATIONS AND SHALL BE INSTALLED AT ALL VERTICAL AND HORIZONTAL BENDS AND FITTINGS. PRIOR TO BLOCKING, THE FITTINGS SHALL BE WRAPPED WITH VISQUEEN.

5. ALL CONNECTIONS TO EXISTING MAINS AND ALL TESTING AND DISINFECTION SHALL BE PERFORMED UNDER THE SUPERVISION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS INSPECTOR.

6. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN SO AS TO AVOID DAMAGE OR DISTURBANCE. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

7. ALL CONTRACTORS WORKING WITH AC PIPE MUST BE STATE-CERTIFIED. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EQUIPMENT (COVERALLS, GLOVES, BOOTS, HEAD COVERING, GOGGLES, RESPIRATORS, ETC.) TO CREWS WORKING WITH ASBESTOS CEMENT PIPE IN ORDER TO ASSURE THE WORKER'S EXPOSURE TO ASBESTOS MATERIAL IS AT OR BELOW THE LIMITS PRESCRIBED IN WAC 296-62-07705.

8. AN APPROVED COPY OF THE WATER PLAN MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. A 5' MINIMUM HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ALL WATER FACILITIES AND UNDERGROUND POWER AND TELEPHONE FACILITIES, UNLESS OTHERWISE APPROVED BY THE CITY OF KIRKLAND.

10. FOR WATER MAIN AND SEWER MAIN SEPARATION REQUIREMENTS, SEE ITEM VIII.C OF THE SANITARY SEWER – DESIGN CRITERIA SECTION AND DETAIL W.01.

11. PRESSURE AND PURITY TESTING SHALL BE DONE IN THE PRESENCE OF, AND UNDER THE SUPERVISION OF, A CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS INSPECTOR. THE CONTRACTOR SHALL PROVIDE ALL PLUGS AND TEMPORARY BLOWOUT ASSEMBLIES FOR PRESSURE TESTING AND DISINFECTION PRIOR TO FINAL TIE-IN. NO CONNECTION SHALL BE MADE BETWEEN THE NEW MAIN AND THE EXISTING MAINS UNTIL THE NEW PIPING HAS BEEN DISINFECTED, FLUSHED, AND PASSED BOTH PRESSURE AND PURITY TESTING. TEMPORARY PLUGS AND BLOCKING SHALL BE INSTALLED AT THE POINTS OF CONNECTION TO THE EXISTING SYSTEM. FOR CONSTRUCTION OF NEW WATER MAIN, THE SERVICES WILL BE TESTED WITH THE MAIN. PRESSURE TESTING WILL REQUIRE A MINIMUM OF 200 PSI FOR 15 MINUTES WITH NO PRESSURE DROP. UPON SATISFACTORY COMPLETION OF THE PRESSURE TEST, THE LINE SHALL BE DISINFECTED, FLUSHED, AND THEN A SAMPLE SHALL BE TAKEN FOR PURITY TESTING BY THE PUBLIC WORKS INSPECTOR.

12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF KIRKLAND INSPECTOR 24 HOURS IN ADVANCE OF BACKFILLING ALL WATER MAIN CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING AS-BUILT DRAWINGS OF ALL CONSTRUCTION NOT INSTALLED ACCORDING TO THE APPROVED PLANS. (THIS DOES NOT GIVE APPROVAL FOR AS-BUILT CONSTRUCTION.)

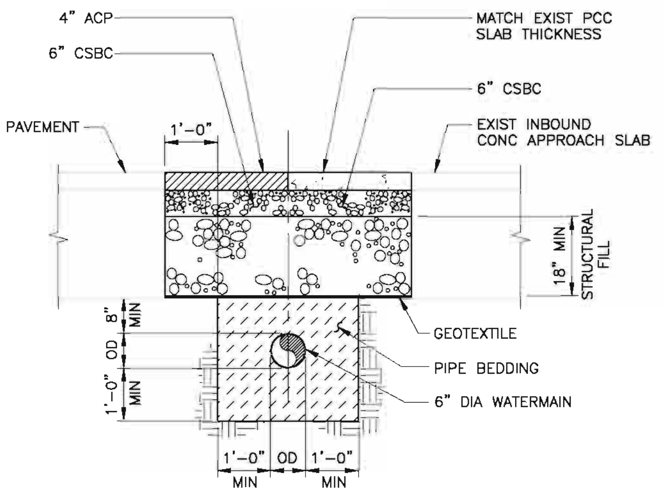
13. THE CONTRACTOR SHALL CONTACT THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FIVE (5) DAYS PRIOR TO ANY WORK REQUIRING THE SHUTDOWN OF EXISTING WATER MAINS. THE CONTRACTOR IS REQUIRED TO GIVE 48 HOURS NOTICE TO ALL CUSTOMERS AFFECTED BY A WATER MAIN SHUTDOWN. SHUTDOWNS SHALL BE SCHEDULED FOR TUESDAYS, WEDNESDAYS, AND THURSDAYS BETWEEN 9 A.M. AND 4 P.M. SHUTDOWNS AFFECTING INSTITUTIONS SHALL BE SCHEDULED AT NIGHT.

14. THERE SHALL BE NO WATER MAIN CONSTRUCTION ON A SATURDAY, SUNDAY, OR HOLIDAYS OBSERVED BY THE CITY OF KIRKLAND.

15. SHOULD THE WATER MAIN WORK NECESSITATE THE CLOSING OF CERTAIN GATE VALVES WITHIN THE EXISTING SYSTEM, THE CITY OF KIRKLAND MAINTENANCE DEPARTMENT SHALL BE RESPONSIBLE FOR THE OPERATION OF SUCH VALVES.

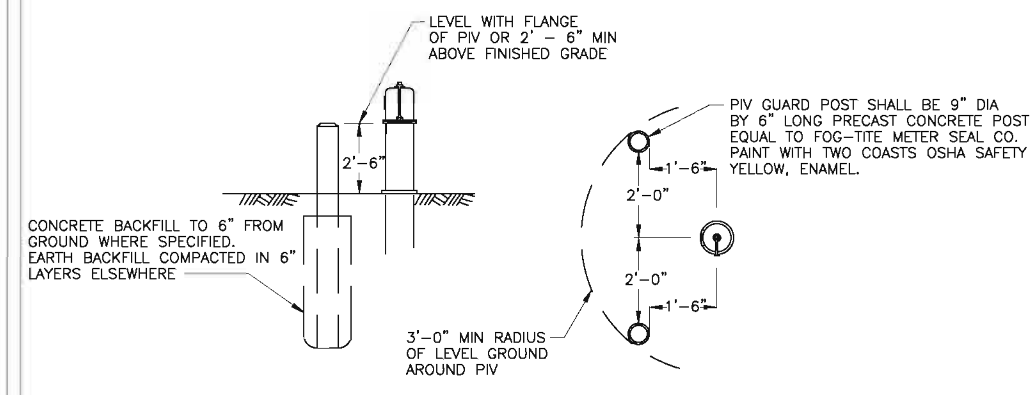
16. THE FIRE FLOW SYSTEM SHALL BE INSTALLED, TESTED, AND APPROVED PRIOR TO ABOVE-GROUND COMBUSTIBLE CONSTRUCTION.

17. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.



1 C1-2 WATER MAIN TRENCH SECTION

NO SCALE

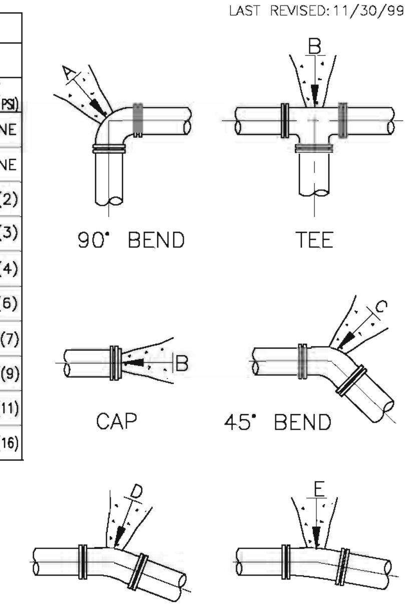


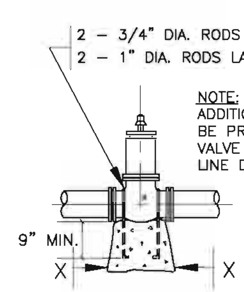
2 C1-2 POST INDICATOR VALVE GUARD POST

NO SCALE

LAST REVISED: 11/30/99

THRUST BLOCK – TABLE							
		MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL SQUARE FEET					
PIPE SIZE	PRESSURE PSI	A	B	C	D	E	X (100 PSI)
4"	200 300	2/(1) 3/(2)	1/(NONE) 2/(2)	1/(NONE) 2/(1)	NONE 1/(1)	NONE NONE	NONE
6"	200 300	4/(3) 6/(4)	3/(2) 4/(3)	3/(1) 3/(2)	1/(1) 2/(1)	1/(NONE) 1/(NONE)	NONE
8"	200 300	7/(5) 11/(8)	5/(3) 8/(5)	4/(3) 6/(4)	2/(2) 3/(2)	1/(1) 2/(1)	3/(2)
10"	200 275	11/(8) 16/(11)	8/(6) 11/(7)	6/(4) 9/(6)	3/(2) 5/(3)	2/(1) 3/(2)	4/(3)
12"	200 250	16/(11) 24/(16)	11/(8) 17/(11)	9/(6) 13/(9)	5/(3) 7/(5)	3/(2) 4/(3)	5/(4)
14"	200 250	22/(13) 33/(22)	16/(11) 23/(16)	12/(8) 18/(12)	6/(4) 9/(6)	3/(2) 5/(3)	7/(6)
16"	200 225	29/(19) 23/(16)	21/(14) 23/(16)	16/(11) 17/(12)	8/(6) 9/(6)	5/(3) 5/(3)	10/(7)
18"	200	36/(24)	26/(17)	20/(13)	10/(7)	5/(4)	13/(9)
20"	200	45/(29)	32/(21)	24/(16)	13/(8)	7/(4)	16/(11)
24"	200	64/(43)	46/(30)	35/(23)	18/(12)	9/(6)	23/(16)





NOTE:
ADDITIONAL BLOCKING MUST BE PROVIDED IF GATE VALVE IS AT END OF LINE LINE DURING TESTING.

SAFE BEARING LOADS IN LB./SQ. FT.
THE SAFE BEARING LOADS GIVEN IN THE FOLLOWING TABLE ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE BEARING LOAD LB. PER SQ. FT.
* MUCK, PEAT, ETC.	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

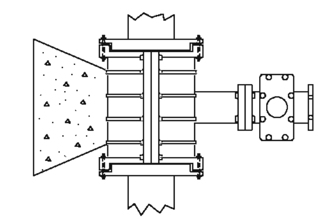
* IN MUCK OR PEAT, ALL THRUSTS SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUST.

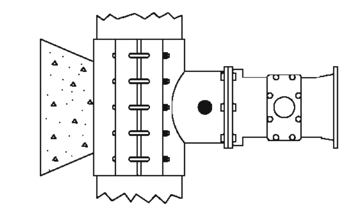
NOTES:

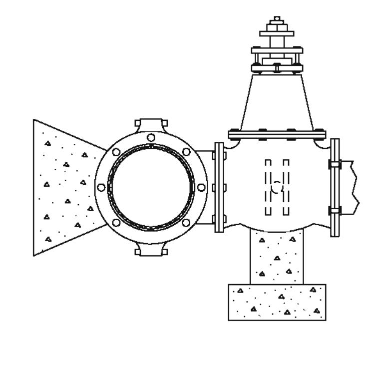
1. SQUARE FEET OF CONCRETE THRUSTS – BLOCK AREA BASED ON SAFE BEARING LOAD OF 2000/(3000) POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER SIZE PIPE, PRESSURES & SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE & HAVE MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY & SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

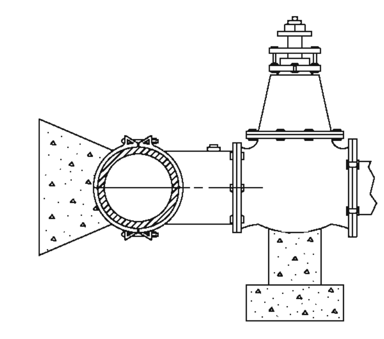
CITY OF KIRKLAND
PLAN NO. CK–W.02
CITY OF KIRKLAND WASHINGTON
CONCRETE THRUST BLOCKING

LAST REVISED: 11/30/99









CAST IRON TAPPING TEE
MECHANICAL JOINT SLEEVE
INSTALLED ON ASBESTOS CEMENT PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE.

STAINLESS STEEL OR STEEL
TAPPING TEE

STAINLESS STEEL TAPPING TEE
INSTALLED ON ASBESTOS CEMENT PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE.

STEEL TAPPING TEE
INSTALLED ON DUCTILE IRON PIPE ONLY.

NOTES:

1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL. BOLTS AND NUTS SHALL BE STAINLESS STEEL.
2. STEEL TAPPING TEES SHALL BE EPOXY COATED. BOLTS AND NUTS SHALL BE COR-TEN, OR STAINLESS STEEL.
3. ALL TEES AND VALVES TO BE WATER TESTED BEFORE TAP.
4. NO SIZE ON SIZE TAPS. TAP SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN.

CITY OF KIRKLAND
PLAN NO. CK–W.06
CITY OF KIRKLAND WASHINGTON
TAPPING TEES

95% SUBMITTAL

THOMAS D. PITTSFORD STATE OF WASHINGTON 20393 REGISTERED PROFESSIONAL ENGINEER
EXPIRES

ANDERSEN BJORNSTAD KANE JACOBS • INC
CONSULTING ENGINEERS
800 FIFTH AVENUE SUITE 3600 SEATTLE, WASHINGTON 98104-3103
TEL: 206-340-2255 FAX: 206-340-2268 E-MAIL: ABKJ@ABKJ.COM

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C23001C
SAFETY IMPROVEMENTS

DIRECTORY/PROJECT No: 95159.00
CADD FILE: HOUGH97.DWG
PLOTTED: 01/02/02
PLACE A CHECK MARK IN THIS BOX IF THIS DRAWING HAS RECEIVED MANUAL DRAFTING CHANGES. IF THIS BOX IS CHECKED, DO NOT MAKE ADDITIONAL CHANGES TO THE CADD DESIGN.

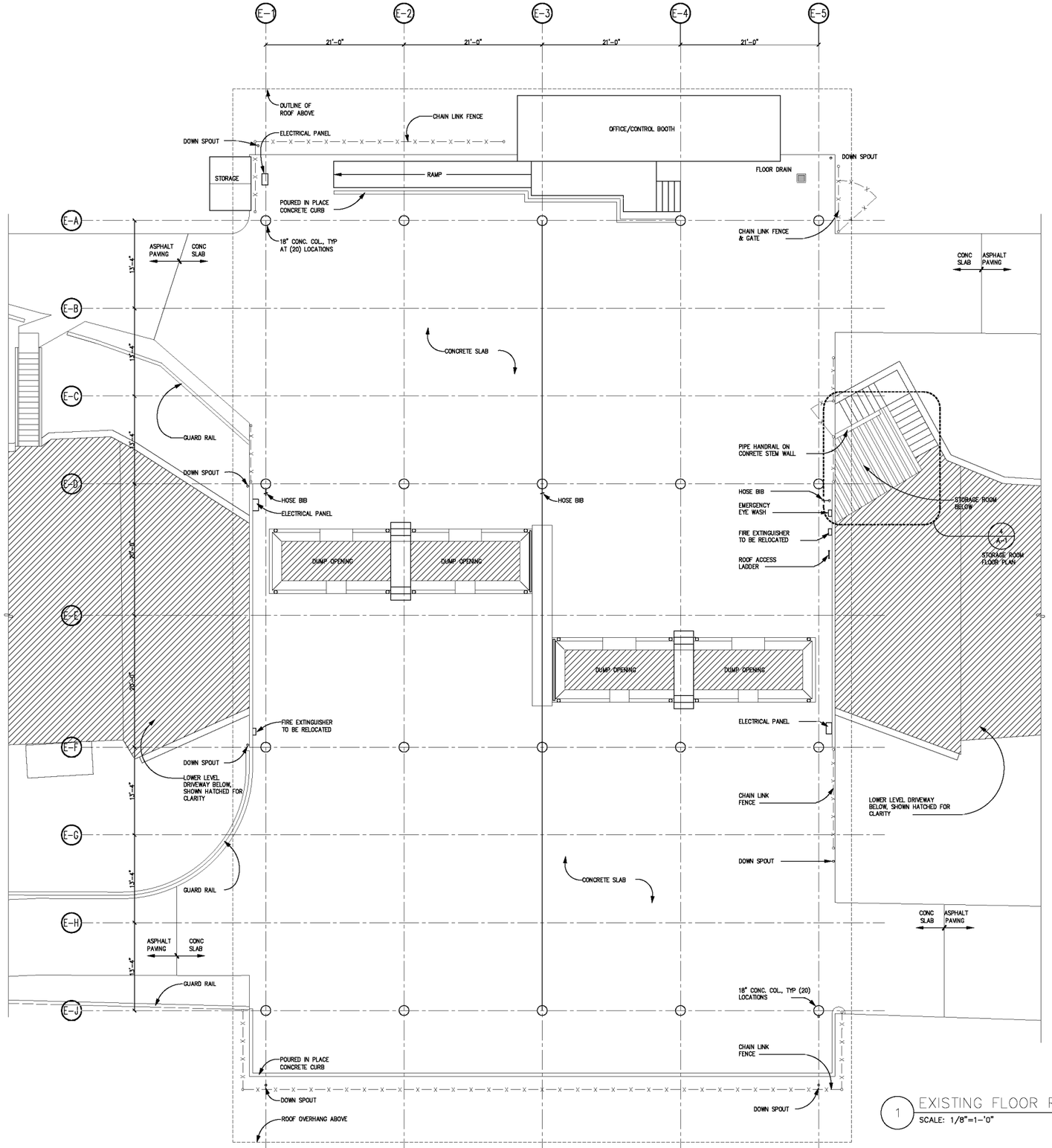
REVISIONS	
12/14/01	COST ESTIMATE SET
01/02/02	95% SUBMITTAL

PROJECT: HOUGHTON TRANSFER STATION ROOF REPLACEMENT PROJECT
CONTENTS: HOUGHTON DETAILS & NOTES

PROJECT No 95159.00
DESIGNED JRP
DRAWN DDA
CHECKED JRP
DATE DEC 14, 2001

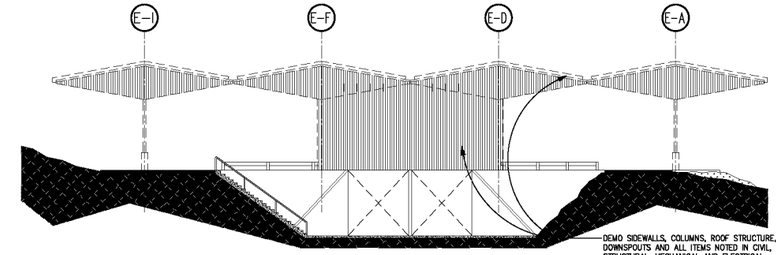
SHEET No C1-2

$USER$ $DATE$ $TIME$ $FILE$



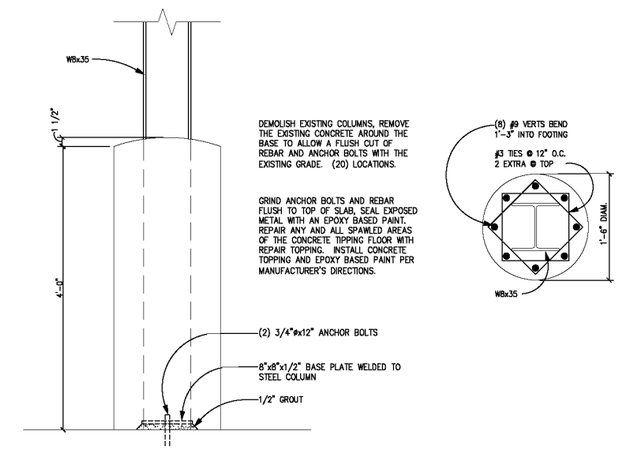
1 EXISTING FLOOR PLAN
SCALE: 1/8"=1-'0"

PLAN NORTH

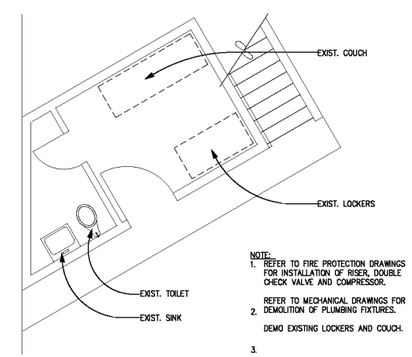


DEMO SIDEWALLS, COLUMNS, ROOF STRUCTURE, DOWNSPOUTS AND ALL ITEMS NOTED IN CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AS WELL AS ITEMS NECESSARY TO COMPLETE CONSTRUCTION OF THE NEW ROOF STRUCTURE. CONTRACTOR IS REQUIRED TO VISIT THE SITE PRIOR TO BID, EXAMINE EXISTING CONDITIONS AND INCLUDE ALL DEMOLITION REQUIREMENTS FOR THE SCOPE OF THE PROJECT IN THE CONTRACT SUM. NO ADDITIONAL PAYMENTS WILL BE MADE FOR FAILURE TO OBTAIN THE INFORMATION.

2 EXISTING ELEVATION
SCALE: 1/16"=1-'0"



3 EXISTING COLUMN BASE DETAILS
SCALE: 1"=1-'0"



NOTE:
1. REFER TO FIRE PROTECTION DRAWINGS FOR INSTALLATION OF RISER, DOUBLE CHECK VALVE AND COMPRESSOR.
2. REFER TO MECHANICAL DRAWINGS FOR DEMOLITION OF PLUMBING FIXTURES.
3. DEMO EXISTING LOCKERS AND COUCH.

4 STORAGE ROOM FLOOR PLAN
SCALE: 1/4"=1-'0"

95% SUBMITTAL

Hatchell & Oremus ARCHITECTURE
REGISTERED ARCHITECT No. 7080
Kevin S. Oremus
STATE OF WASHINGTON

ANDERSEN BJORNSTAD KANE JACOBS, INC
CONSULTING ENGINEERS
800 FIFTH AVENUE
SUITE 101
SEATTLE, WASHINGTON
TEL. 206-343-0353
FAX. 206-343-2255
E-MAIL: SEA@ABKJ.COM

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C23001C
SAFETY IMPROVEMENTS

DIRECTORY/PROJECT No: 95159.00
CAD FILE: 95159
PLOTTED: 12/21/01
PLACE A CHECK MARK IN THIS BOX IF DRAWING WAS MODIFIED DURING THE DESIGN PHASE TO REFLECT CHANGES TO THE AS-BUILT DESIGN.
REVISIONS

PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
EXISTING FLOOR PLAN

PROJECT No 95159.20
DESIGNED DS
DRAWN DDA
CHECKED DS
DATE JAN. 2, 2002

SHEET No
A-1

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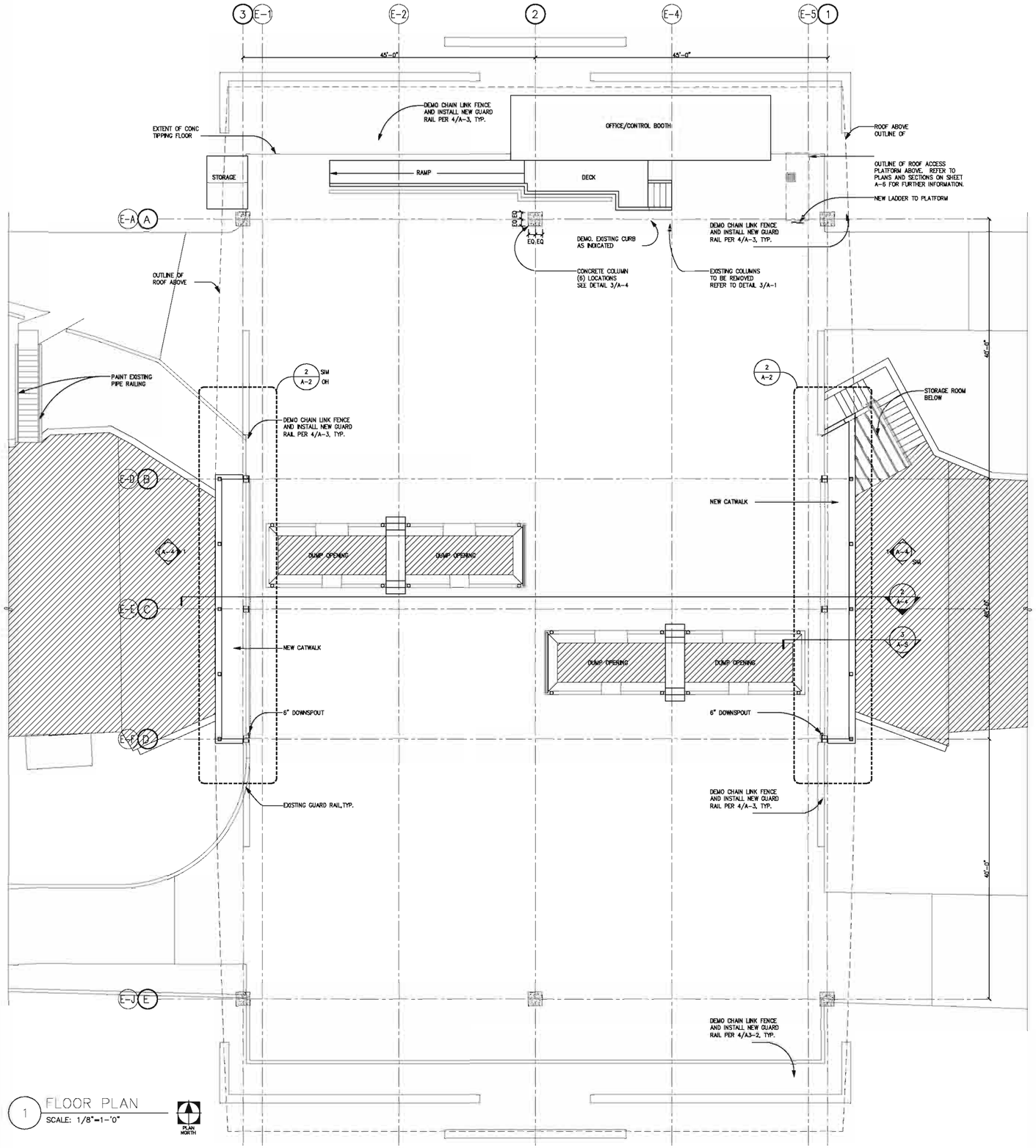
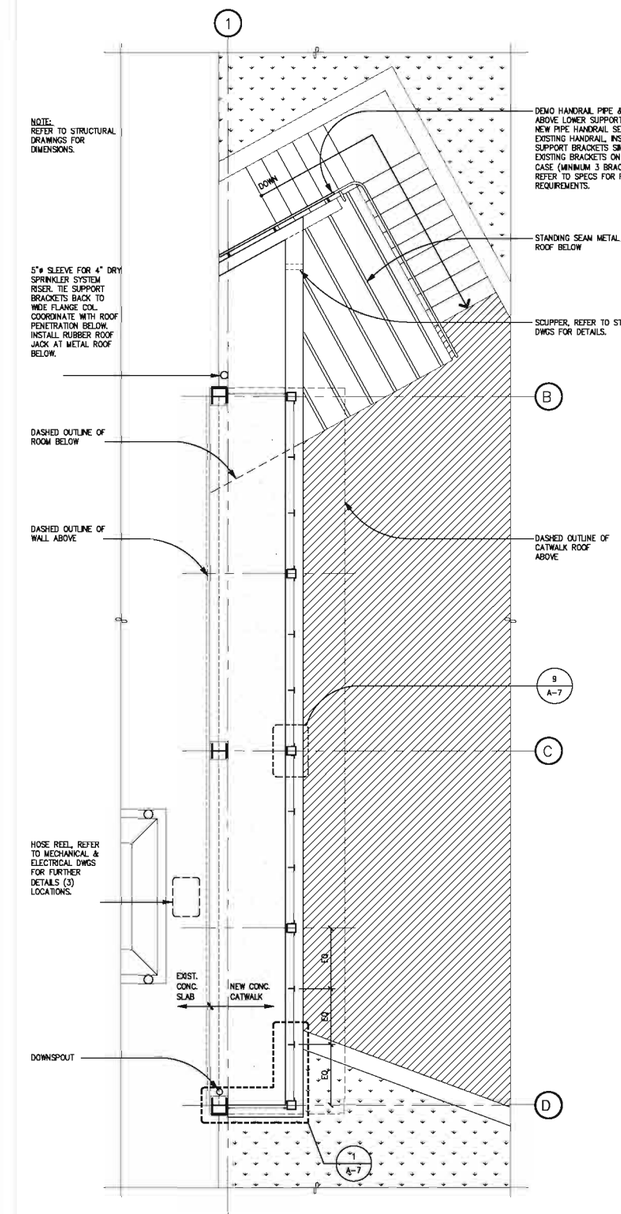


1 FLOOR PLAN
SCALE: 1/8"=1'-0"



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

95% SUBMITTAL

Bottelsell & Oremus ARCHITECTURE
REGISTERED ARCHITECT No. 7080
Kevin S. Oremus
STATE OF WASHINGTON

ANDERSEN BJORNSTAD KANE JACOBS, INC
CONSULTING ENGINEERS
800 FIFTH AVENUE
SUITE 101
SEATTLE, WASHINGTON
98104-3103
TEL. 206-343-3255
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E-MAIL: ABKJ@ABKJ.COM

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C2300IC
SAFETY IMPROVEMENTS

DIRECTORY/PROJECT No: 95159.00
CADD FILE:
PLOTTED: 12/21/01
PLACE A CHECK MARK IN THIS BOX IF DRAFTSMAN CHANGES THIS BOX IF DESIGNER CHANGES THIS BOX IF ADDITIONAL CHANGES TO THE CADD DESIGN.

REVISIONS

PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
FLOOR PLAN

PROJECT No 95159.20
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE JAN. 2, 2002

SHEET NO
A-2

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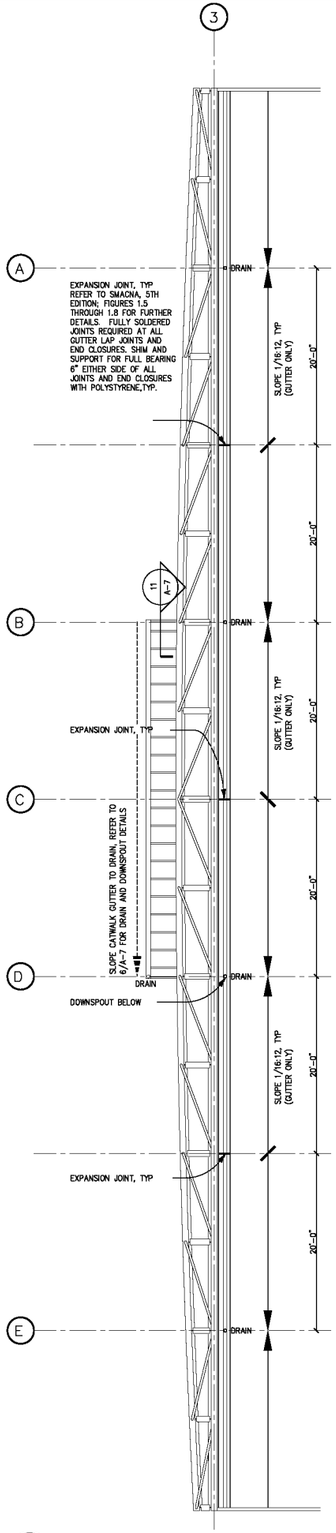
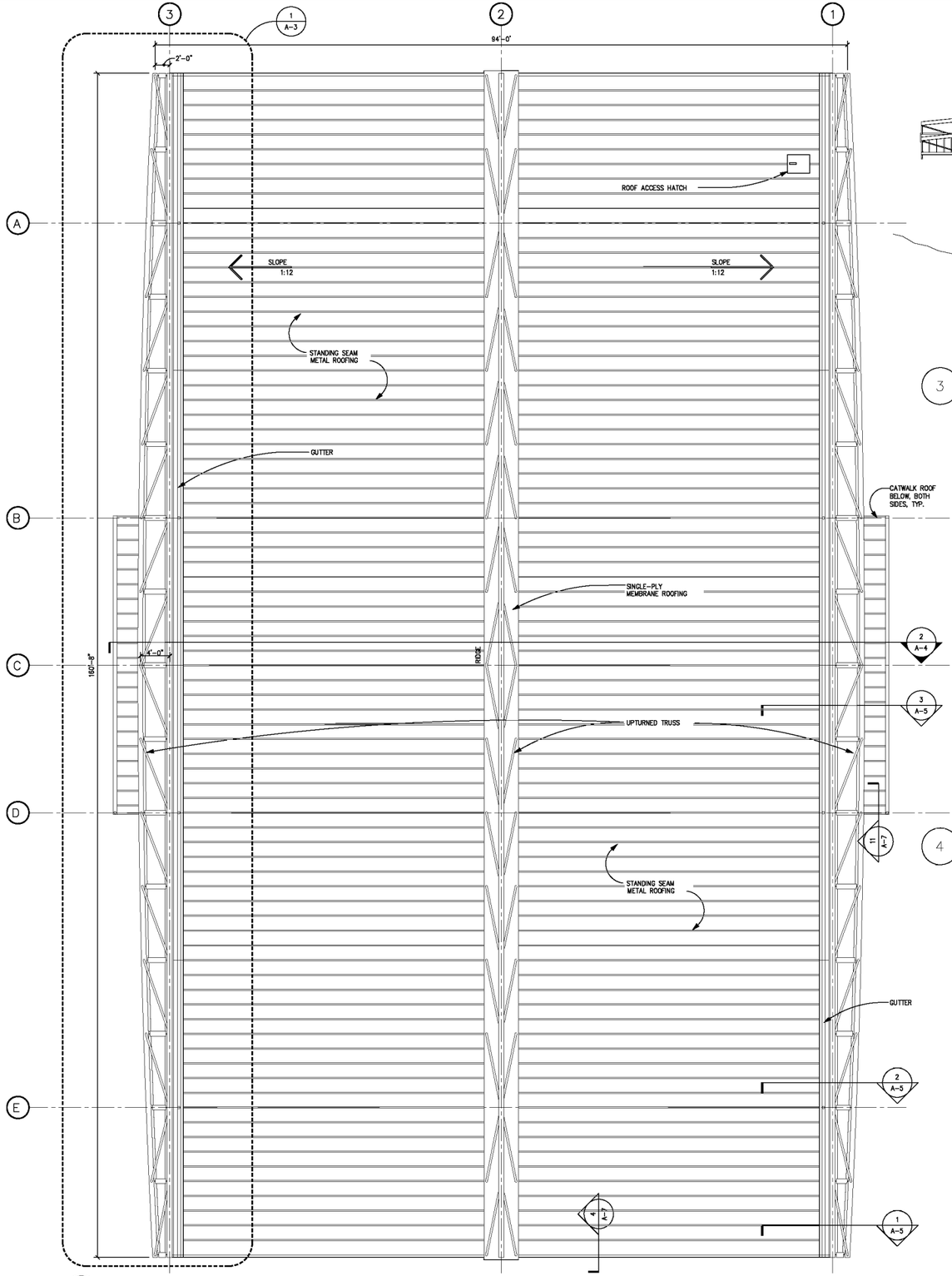


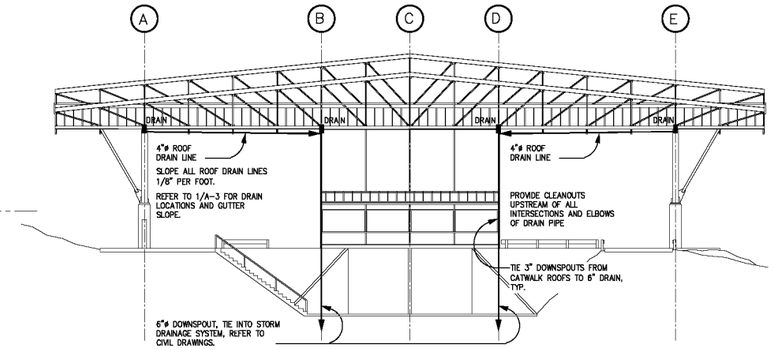
1 SLOPE DETAIL FOR GUTTERS

SCALE: 1/8"=1-'0" TYP ALONG GRID 1 AND 3



2 ROOF PLAN

SCALE: 1/8"=1-'0"

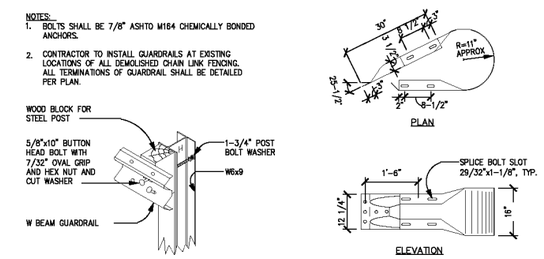


3 ELEVATION – STORMWATER CONVEYANCE SYSTEM

SCALE: 1/16"=1-'0" TYP ALONG GRID 1 AND 3 (WEST ELEVATION SHOWN)

NOTES:

1. BOLTS SHALL BE 7/8" ASHTO M164 CHEMICALLY BONDED ANCHORS.
2. CONTRACTOR TO INSTALL GUARDRAILS AT EXISTING LOCATIONS OF ALL DEMOLISHED CHAIN LINK FENCING. ALL TERMINATIONS OF GUARDRAIL SHALL BE DETAILED PER PLAN.



4 GUARDRAIL DETAILS

SCALE: 1/2"=1-'0"

95% SUBMITTAL

Hatchett & Oremus ARCHITECTURE

REGISTERED ARCHITECT No. 7080 Kevin S. Oremus STATE OF WASHINGTON

ANDERSEN BJORNSTAD KANE JACOBS INC
CONSULTING ENGINEERS
800 FIFTH AVENUE
SUITE 101-3800
SEATTLE, WASHINGTON
TEL. 206-340-2255
E-MAIL 206@abkj.com

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUSTON TRANSFER STATION
C23001C
SAFETY IMPROVEMENTS

REVISIONS

DIRECTORY/PROJECT No: 95159.00
CADD FILE:
PLOTTED: 12/31/01

PLACE A CHECK MARK IN THIS BOX IF DRAWING IS ACCURATE AS THIS BOX IS PLOTTED TO SCALE. IF THIS BOX IS NOT CHECKED, THE DRAWING HAS CHANGED TO THE CADD DESIGN.

PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
ROOF PLAN

PROJECT No 95159.20
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE APR. 4, 2002

SHEET No
A-3

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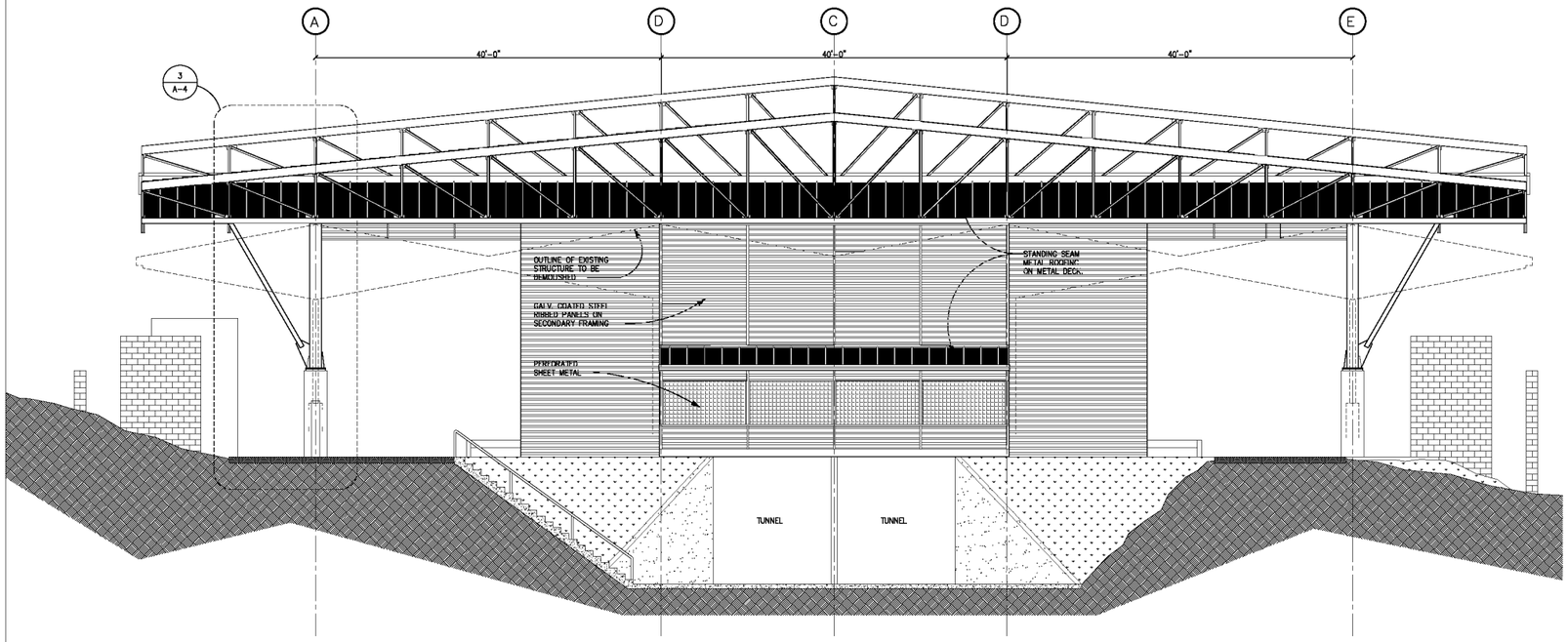
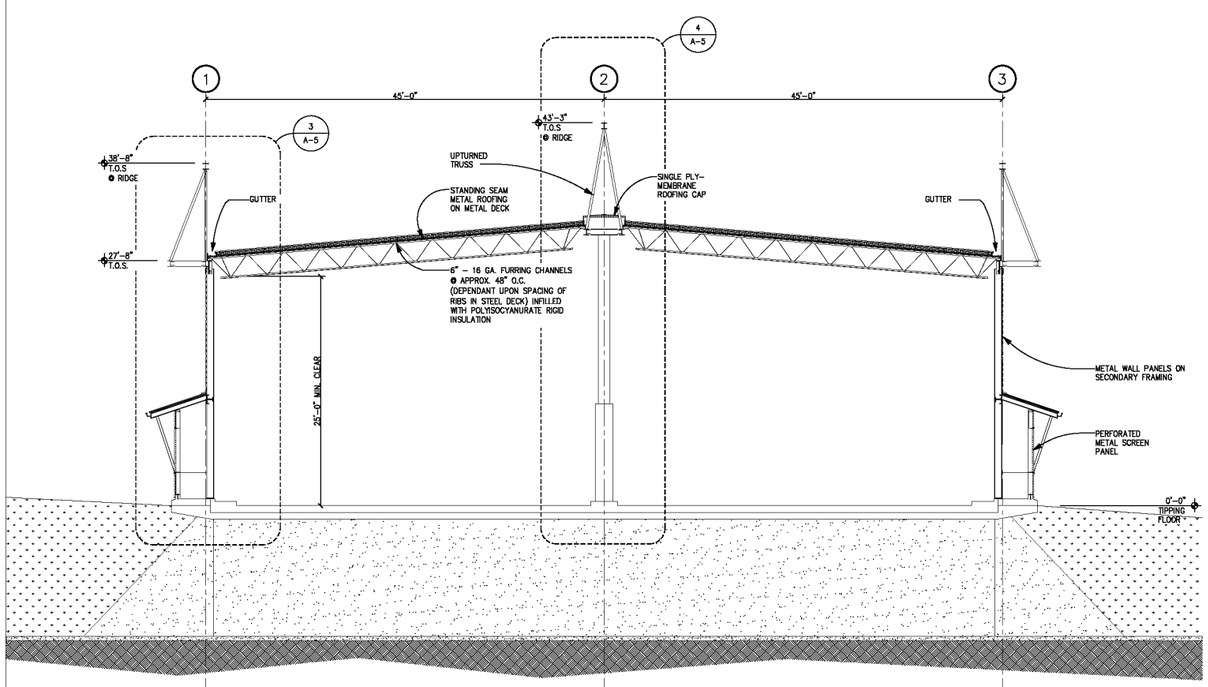


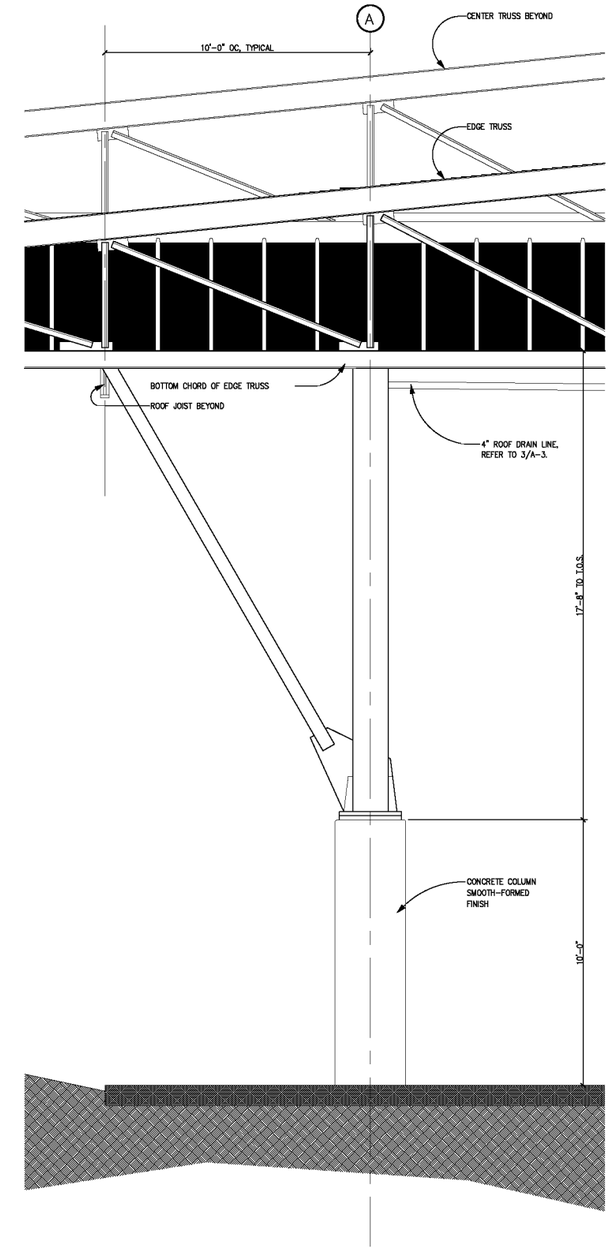
1 WEST ELEVATION

SCALE: 1/8"=1-'0" EAST ELEVATION – SIMILAR



2 SECTION

SCALE: 1/8"=1-'0"



3 ENLARGED ELEVATION

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

95% SUBMITTAL

Hutchall & Oremus ARCHITECTURE

REGISTERED ARCHITECT No. 7080 Kevin S. Oremus STATE OF WASHINGTON

ANDERSEN BJORNSTAD KANE JACOBS, INC
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800 FIFTH AVENUE
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SEATTLE, WASHINGTON
TEL. 206-343-0232
FAX. 206-343-3250
E-MAIL: AKJ@AKJ.COM

KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C2300IC
SAFETY IMPROVEMENTS

REVISIONS

DIRECTORY/PROJECT No: 95159.20
CADD FILE:
PLOTTED: 12/31/01
PLACE A CHECK MARK IN THIS BOX IF DRAFTING CHANGES ARE ISSUED BY DRAFTING CHANGES. IF THIS BOX IS NOT CHECKED, ALL DRAFTING CHANGES TO THE CADD DESIGN.

PROJECT
HOUGHTON TRANSFER STATION ROOF REPLACEMENT PROJECT

CONTENTS
ELEVATIONS & SECTIONS

PROJECT No 95159.20
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE JAN. 2, 2002

SHEET No
A-4

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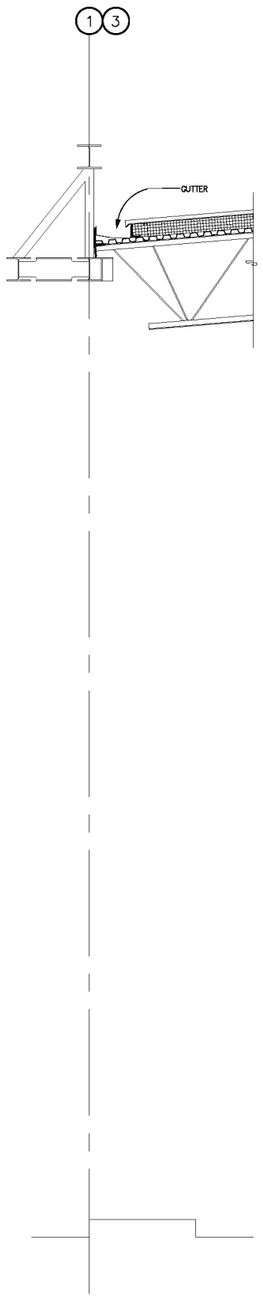
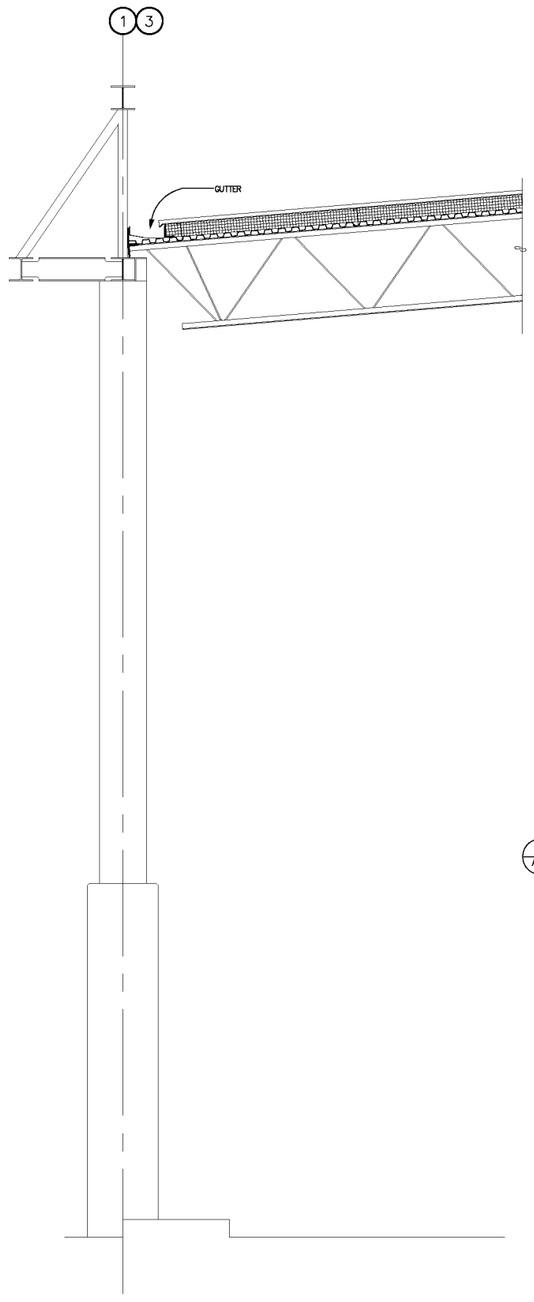
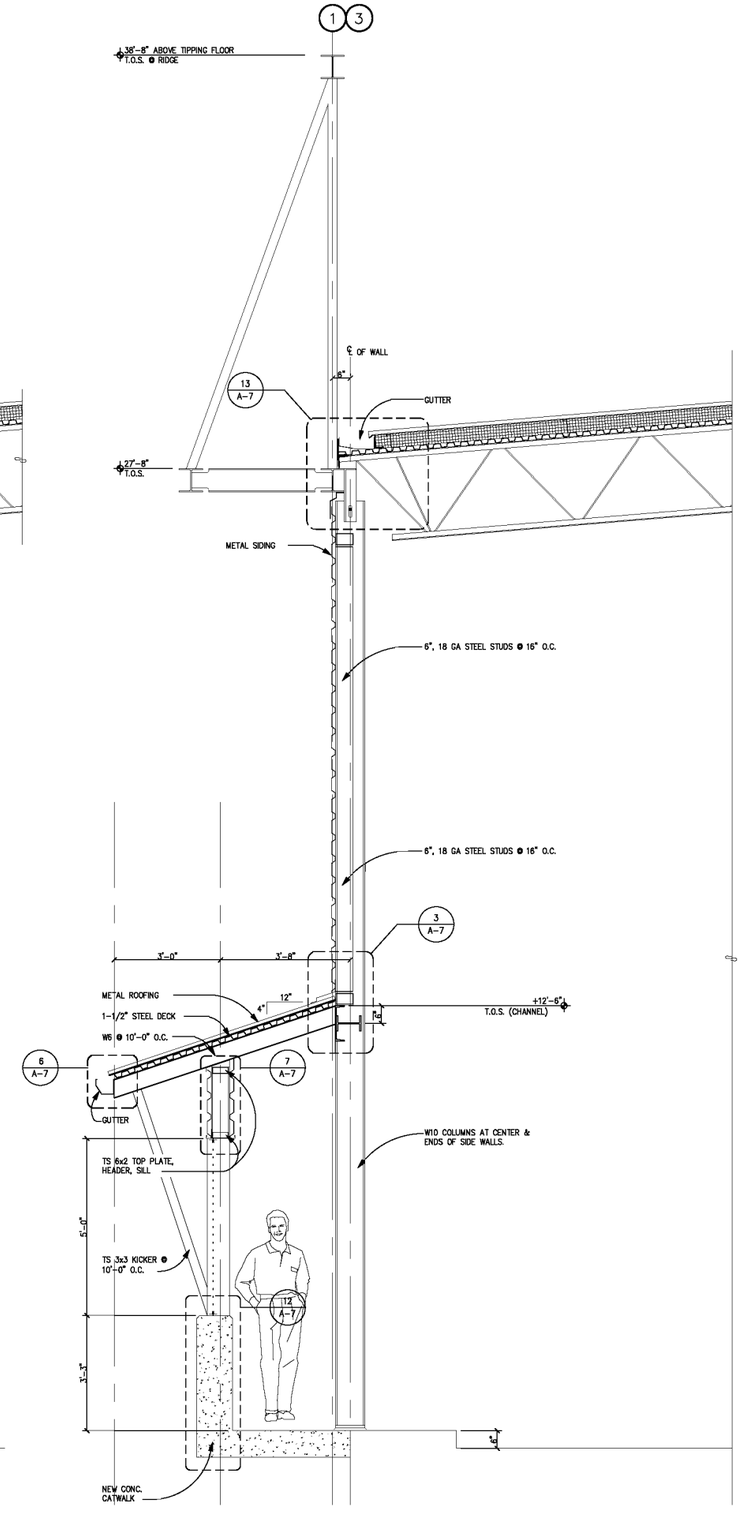


1 SECTION DETAIL
SCALE: 1/2"=1-'0"



2 WALL SECTION
SCALE: 1/2"=1-'0"



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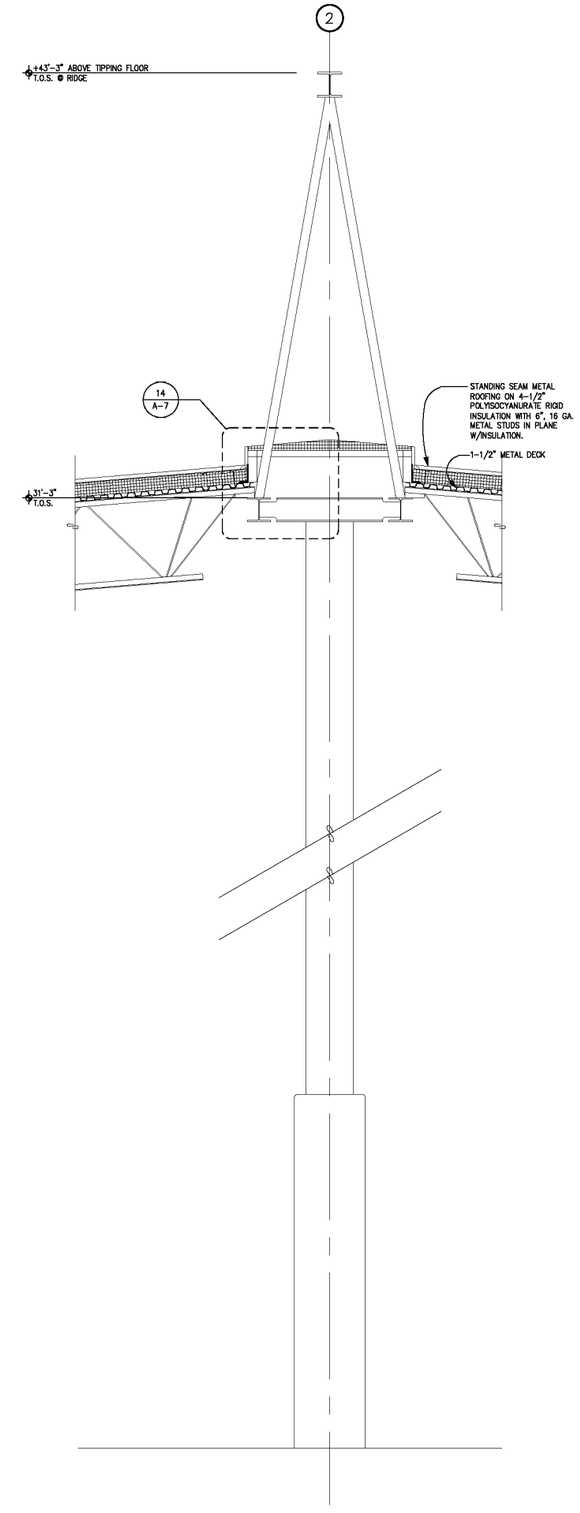

4 WALL SECTION
SCALE: 1/2"=1-'0"

95% SUBMITTAL

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Hutteball & Oremus ARCHITECTURE
REGISTERED ARCHITECT No. 7080
Kevin S. Oremus
STATE OF WASHINGTON

ABKJ
ANDERSEN BJORNSTAD KANE JACOBS • INC
CONSULTING ENGINEERS
800 FIFTH AVENUE
SUITE 3800
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98104-3103
TEL: 206-340-2255
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KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C23001C
SAFETY IMPROVEMENTS

REVISIONS

DIRECTORY/PROJECT No: 95159.00
CADD FILE:
PLOTTED: 12/31/01

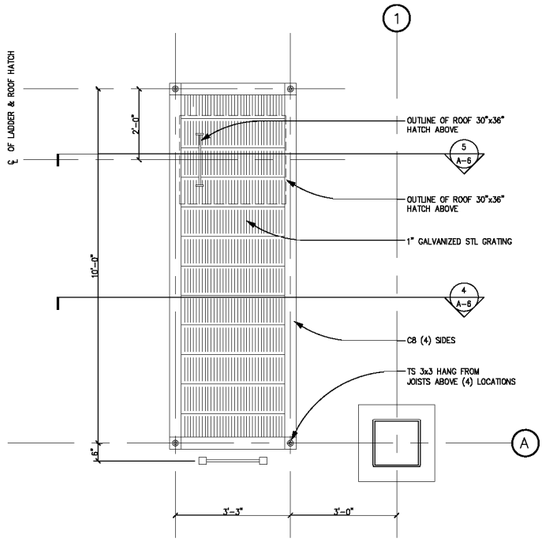
PLACE A CHECK MARK IN THIS BOX IF THIS DRAWING HAS RECEIVED MANUAL DRAFTING CHANGES. IF THIS BOX IS CHECKED, DO NOT MAKE ADDITIONAL CHANGES TO THE CADD DESIGN.

PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
WALL SECTIONS AND DETAILS

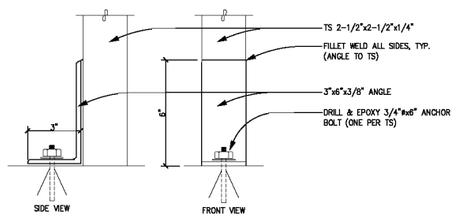
PROJECT No 95159.20
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE JAN. 2, 2002

SHEET No
A-5



1 ROOF ACCESS PLATFORM PLAN
SCALE: 1/2"=1-'0"

NORTH



2 LADDER BASE
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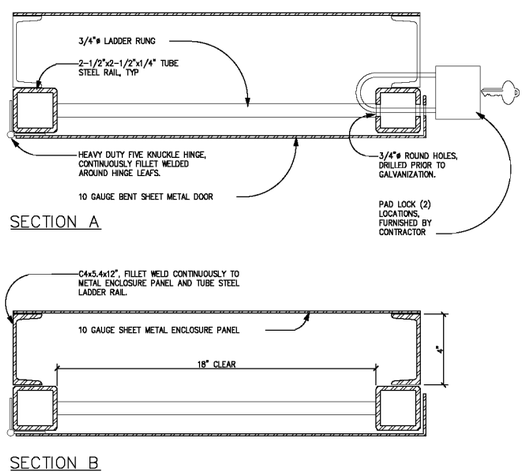

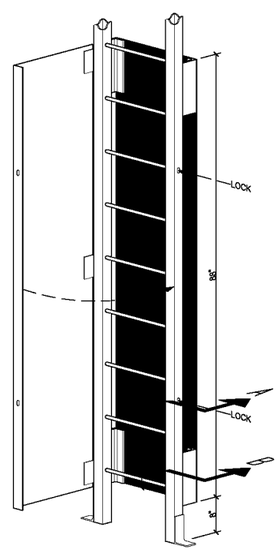

6 LADDER SECURITY DOOR
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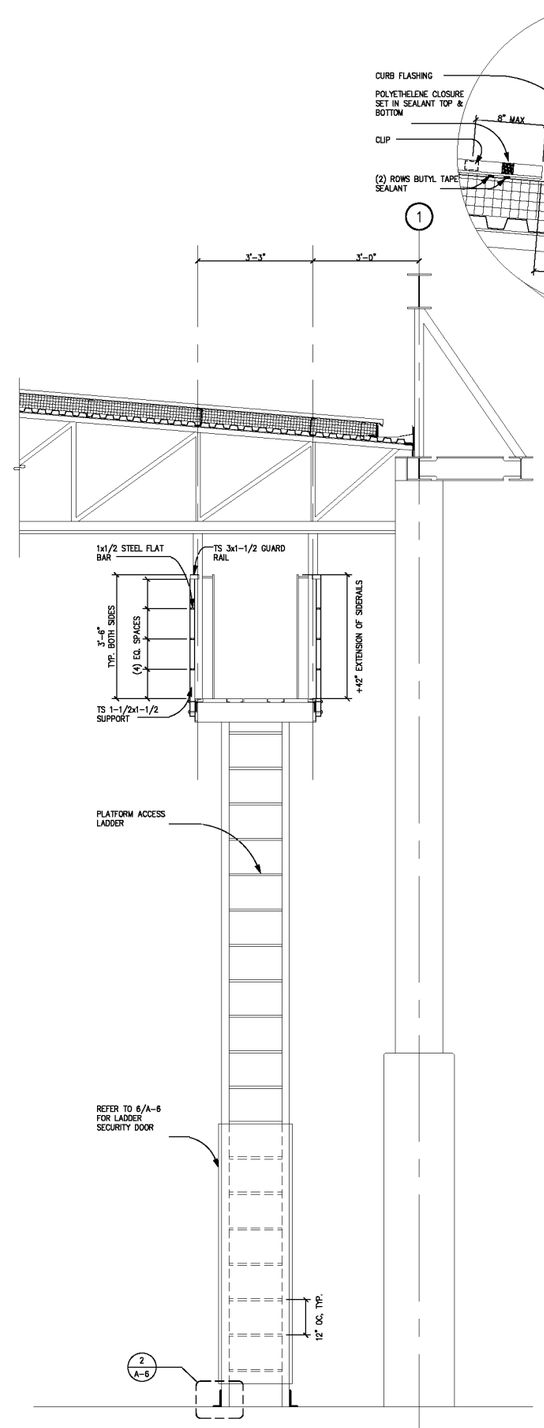

4 WALL SECTION
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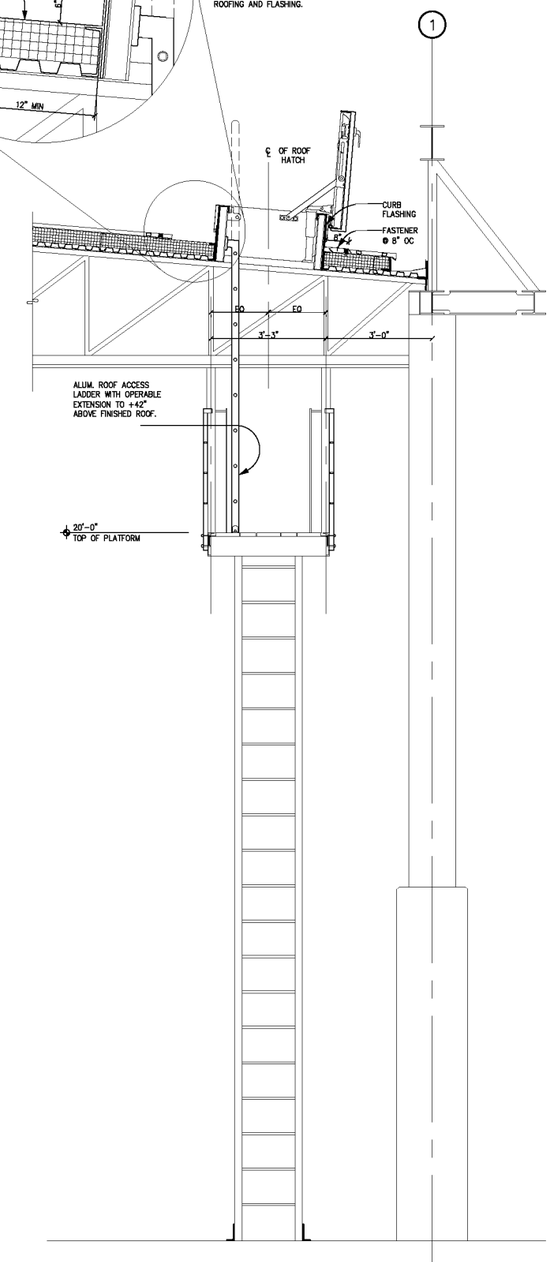

5 WALL SECTION
SCALE: 1/2"=1-'0"

95% SUBMITTAL

Hatchell & Oremus ARCHITECTURE
REGISTERED ARCHITECT No. 7080
Kevin S. Oremus
STATE OF WASHINGTON

ABKJ
ANDERSEN BJORNSTAD KANE JACOBS, INC
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KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C2300IC
SAFETY IMPROVEMENTS

REVISIONS

DIRECTORY/PROJECT No: 95159.00
CADD FILE: LE1
PLOTTED: 12/21/01

PLACE A CHECK MARK IN THIS BOX IF ONLY THE CHANGES, ADDITIONS, OR DELETIONS ARE DIFFERENT FROM THE CADD DESIGN.

PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
ROOF ACCESS LADDER & PLATFORM

PROJECT No 95159.00
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE JAN. 2, 2002

SHEET No
A-6

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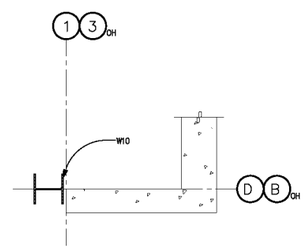
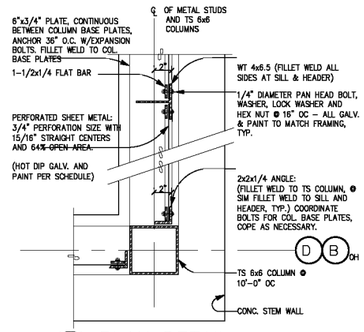


1 PLAN DETAIL
SCALE: 1/2"=1-'0"



2 PLAN DETAIL
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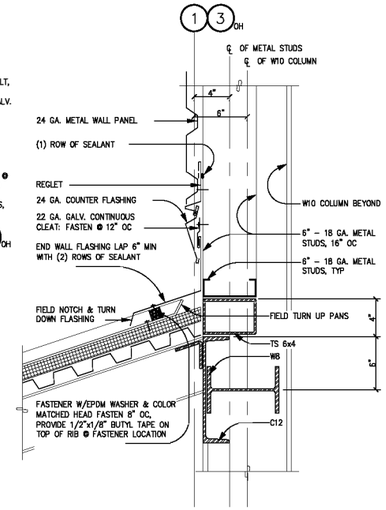

3 ROOF/WALL DETAIL
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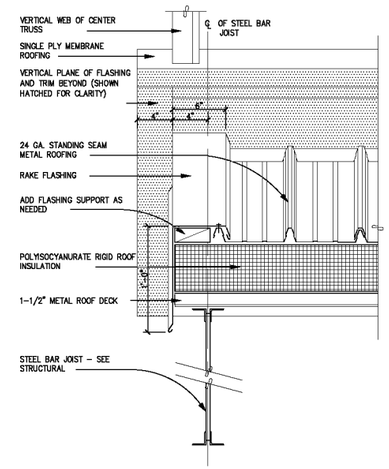

4 RAKE DETAIL
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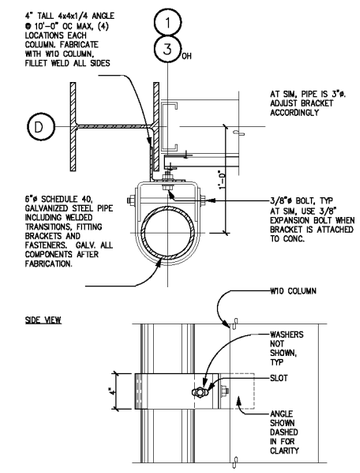

5 NOT USED
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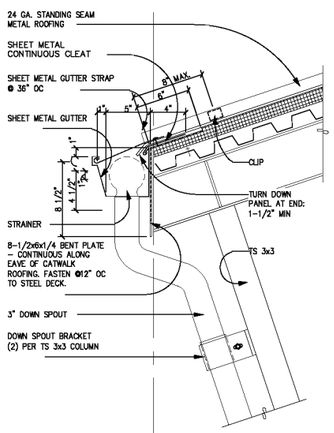
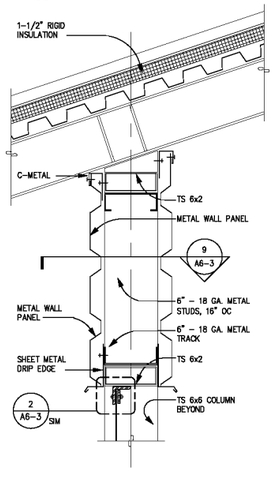
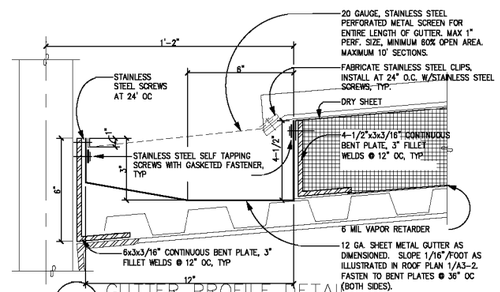


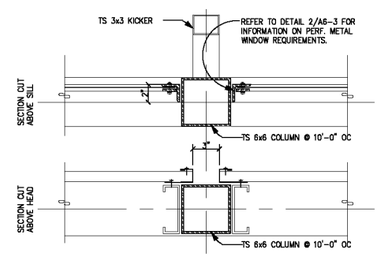
6 GUTTER/EAVE DETAIL
SCALE: 1-1/2"=1-'0"



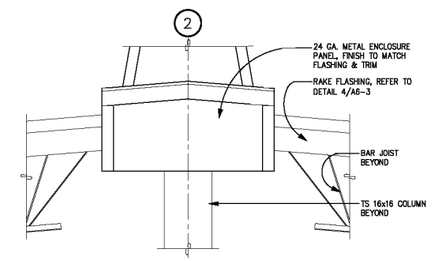
7 WALL/ROOF DETAIL
SCALE: 1-1/2"=1-'0"



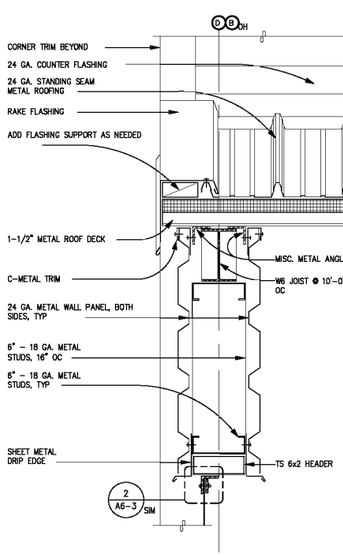
8 GUTTER PROFILE DETAIL
SCALE: 3"=1-'0"



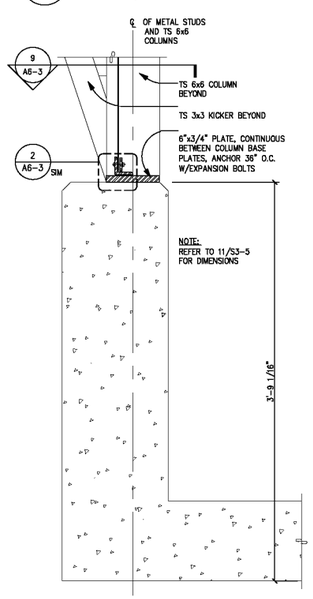
9 WALL DETAIL
SCALE: 3"=1-'0"



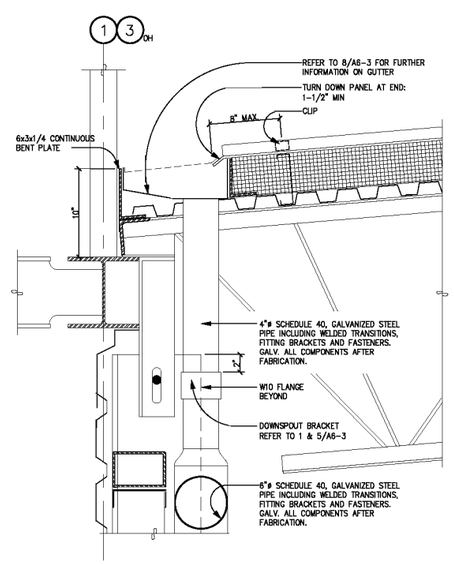
10 DETAIL
SCALE: 1/2"=1-'0"



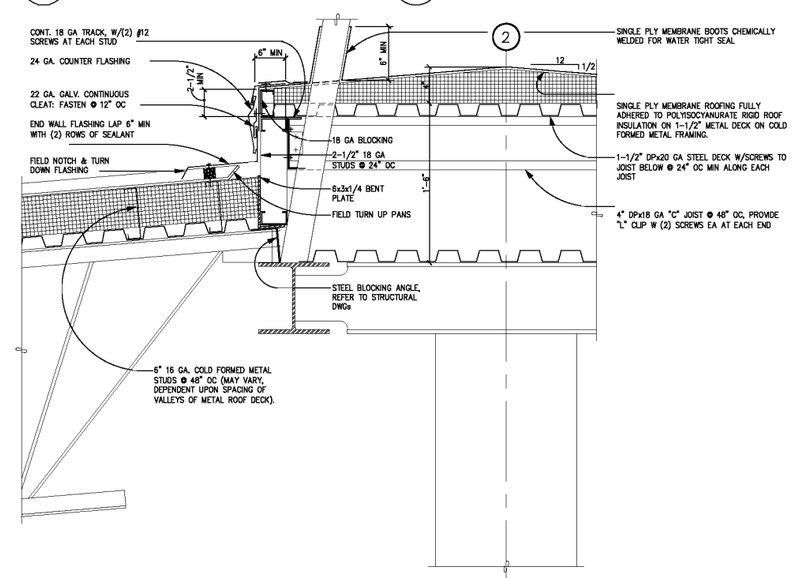
11 RAKE/WALL DETAIL
SCALE: 1-1/2"=1-'0"



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



13 ROOF DETAIL @ EDGE TRUSS
SCALE: 1-1/2"=1-'0"



14 ROOF DETAIL @ CENTER TRUSS
SCALE: 1-1/2"=1-'0"

95% SUBMITTAL

Hatchett & Overman ARCHITECTURE
REGISTERED ARCHITECT No. 7080
Kevin S. Overman
STATE OF WASHINGTON

ANDERSEN BJORNSTAD KANE JACOBS, INC
CONSULTING ENGINEERS
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TEL. 206-340-1255
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KING COUNTY DEPARTMENT OF NATURAL RESOURCES
SOLID WASTE DIVISION
HOUGHTON TRANSFER STATION
C2300IC
SAFETY IMPROVEMENTS

REVISIONS

DIRECTORY/PROJECT No: 95159.00
CAD FILE:
PLOTTED: 12/21/01

PLACE A CHECK MARK IN THIS BOX IF DRAWING WAS MODIFIED TO REFLECT FIELD CHANGES. IF THIS BOX IS NOT CHECKED, THE DRAWING HAS NO CHANGES TO THE CADD DESIGN.

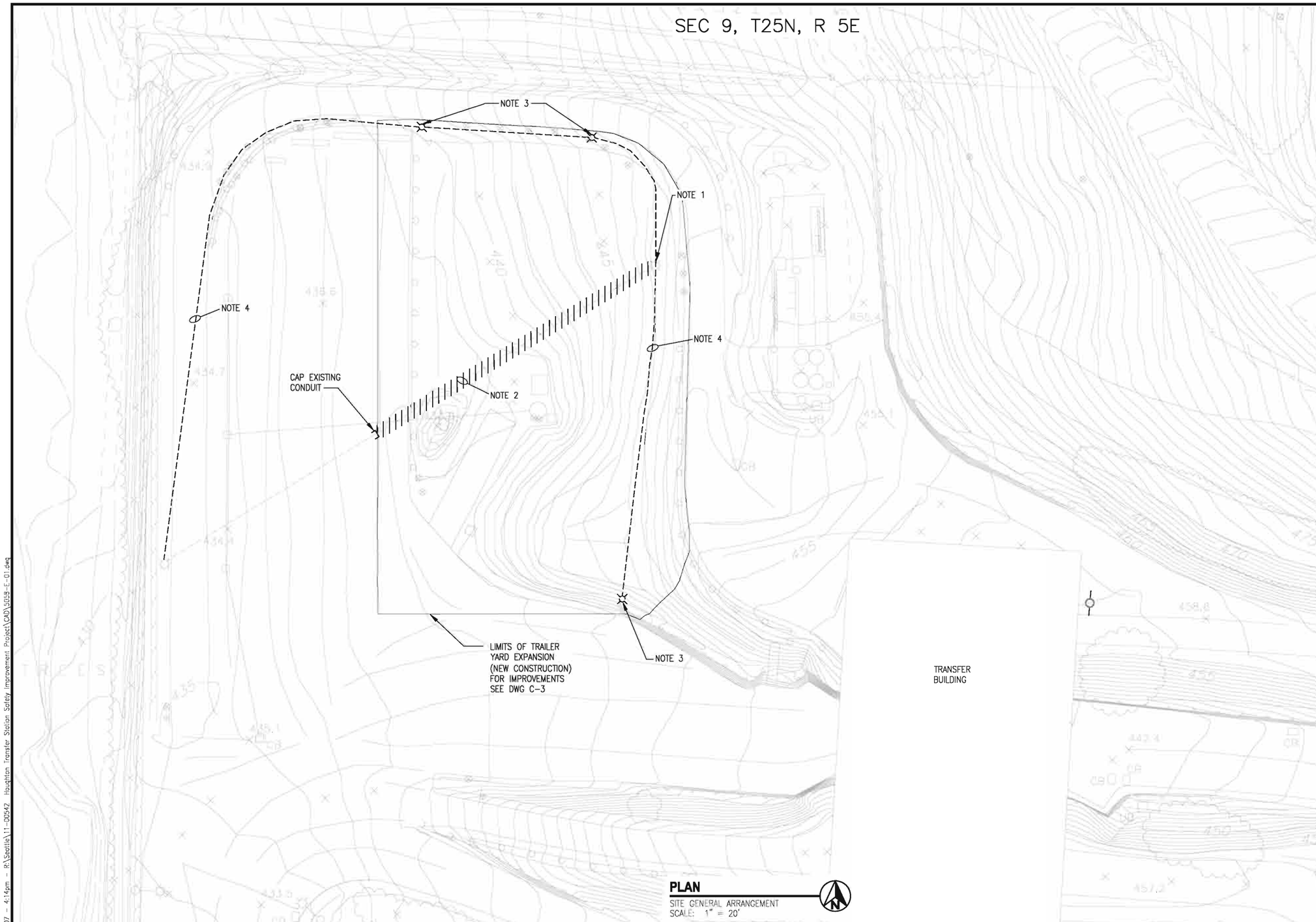
PROJECT
HOUGHTON TRANSFER STATION
ROOF REPLACEMENT PROJECT

CONTENTS
SECTION & PLAN DETAILS

PROJECT No 95159.20
DESIGNED KO/SMM
DRAWN SMM
CHECKED KO
DATE JAN. 2, 2002

SHEET No
A-7

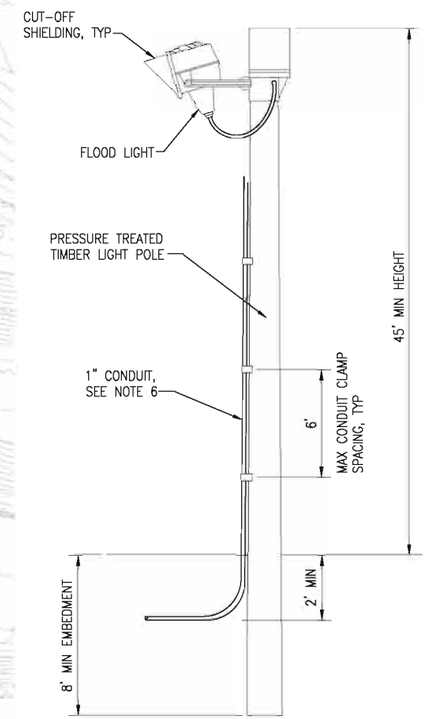
S:\Projects\KCSW\9907\9907-03 Houghton\Architectural\A-7.dwg 03/30/2002 12:13:41



PLAN
SITE GENERAL ARRANGEMENT
SCALE: 1" = 20'

GENERAL NOTES

1. REMOVE POLE AND LIGHT AND STORE FOR REUSE DURING CONSTRUCTION. REINSTALL POLE AND LIGHT IN APPROXIMATELY EXISTING LOCATION AFTER COMPLETION OF CONSTRUCTION IN AREA OF LIGHT.
2. EXISTING ELECTRICAL SERVICE TO WEST FLOOD LIGHT IS TO BE DEMOLISHED IN AREA OF NEW CONSTRUCTION AND REPLACED WITH NEW CONDUIT AND WIRE.
3. PROVIDE NEW WOOD POLE AND FLOOD LIGHT. LIGHT SHALL BE 400W HIGH PRESSURE SODIUM FOR OPERATION ON 240V. (VERIFY VOLTAGE AND WATTAGE BEFORE ORDERING).
4. PROVIDE 1" CONDUIT, SCHEDULE 40 PVC WITH RIGID GALVANIZED STEEL ELBOWS AND RISERS, 3-#8 CONDUCTORS, AND NECESSARY HARDWARE AND FITTINGS TO EXTEND EXISTING CIRCUIT TO NEW FLOOD LIGHTS AND TO RECIRCUIT EXISTING WEST LIGHT. BURY CONDUIT 2' DEEP MINIMUM.



DETAIL 1 / C-3
LIGHT POLE
SCALE: NONE

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

DESIGNED					
DRAWN					
VERIFY SCALE BAR IS ONE INCH ON ANSI "D" DRAWING 0 — 1"					PROCESS IIB ZONING PERMIT APPLICATION
	REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION

King County
Department of Natural Resources and Parks
Solid Waste Division

R·W·BECK
R.W. Beck, Inc.
1001 Fourth Avenue, Suite 2500
Seattle, WA 98154-1004
(206) 695-4700

HOUGHTON TRANSFER STATION
MITIGATION PROJECT

GENERAL ARRANGEMENT
SITE PLAN

PROJECT NUMBER: 11-00542-1000
SHT. – OF: XX
DRAWING NUMBER: E-1

druzcharoen Sep 18, 2007 - 4:14pm - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\5058-E-01.dwg