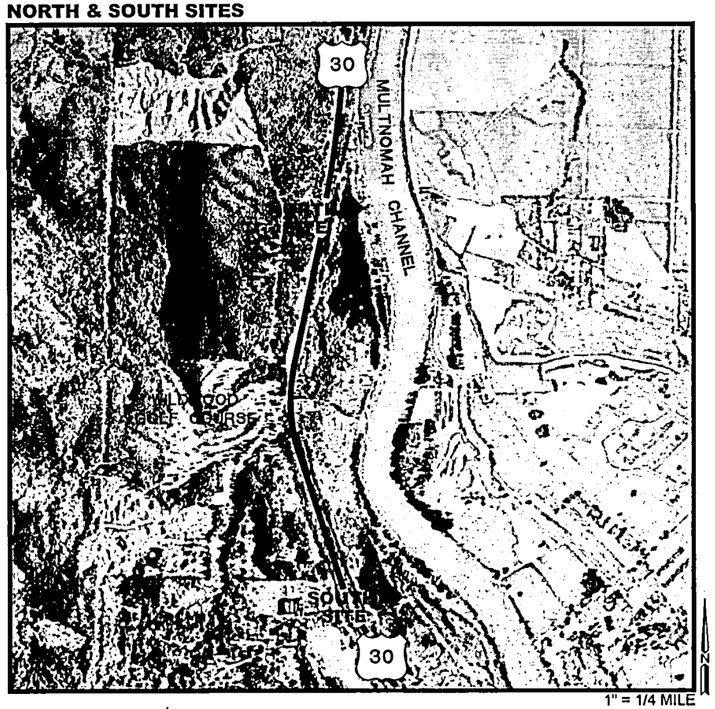
US-OR-32-8 METRO:
MULTNOMAH CHANNEL & SMITH BYBEE WATER CONTROL STRUCTURES FACILITY IMPROVEMENTS

DUCKS UNLIMITED
17700 S. E. MILL PLAIN BLVD. SUITE 100
VANCOUVER, WA. 98683
PH. (360) 885-2011

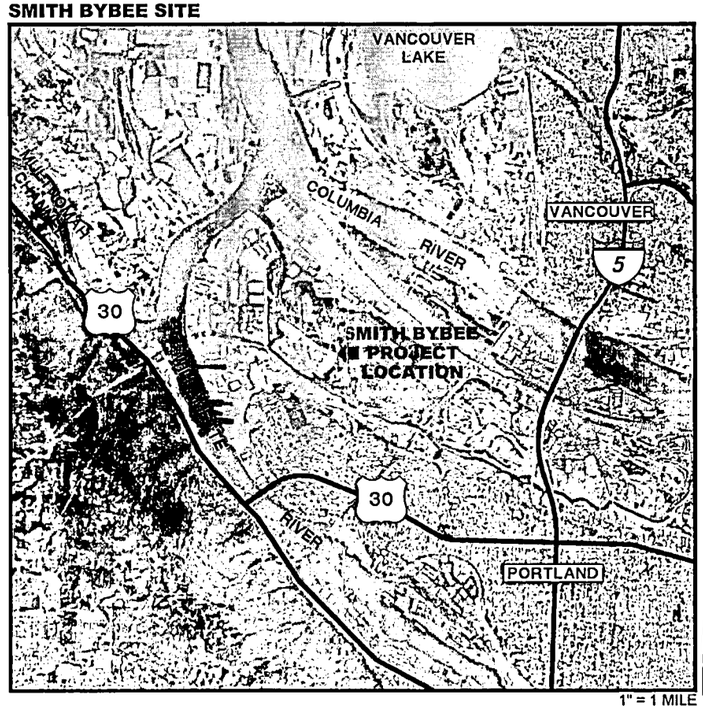
METRO

MULTNOMAH CHANNEL NORTH & SOUTH SITES



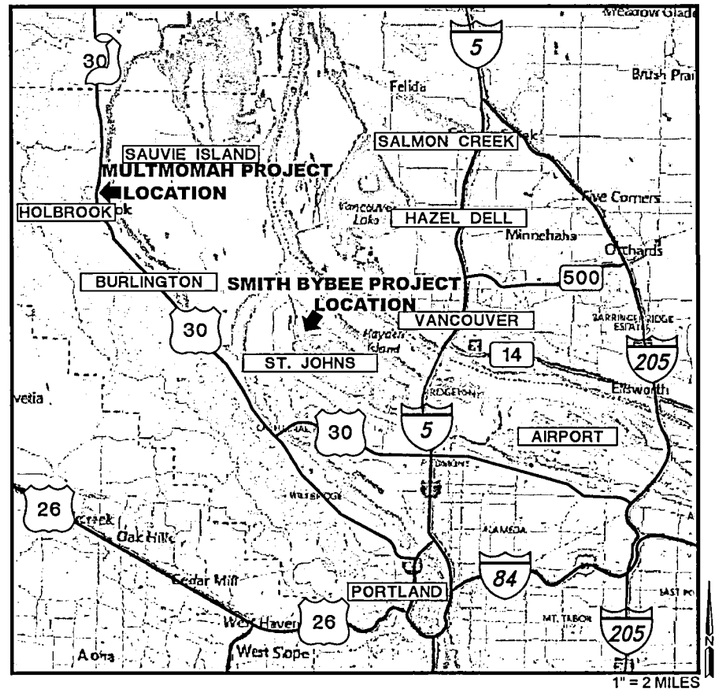
1" = 1/4 MILE

SMITH BYBEE SITE

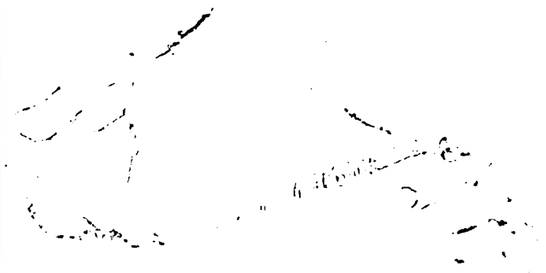


1" = 1 MILE

VICINITY MAP



1" = 2 MILES



SHEET INDEX

90% DESIGN

REVISIONS			
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1			
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DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL & SMITH BYBEE UNITS
WATER CONTROL STRUCTURE IMPOVEMENTS
LOCATION MAP

DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY: JPB
CHECKED BY:
SHEET NO. 1 OF 18

GENERAL NOTES:

1. Ducks unlimited makes no representations as to the existence or nonexistence of utilities. It is the responsibility of the contractor to comply with the provisions of all applicable utility notification regulations. The contractor will be liable for any damage to utilities caused by construction activities.

2. The engineer does not represent that the location of utilities shown on the plans are exact or complete. It shall be the responsibility of the contractor to determine the presence of, actual locations of and make provisions for all watercourses and utilities. The contractor shall verify location, depth and height. Their verification shall be coordinated by the contractor with the appropriate utility company.

3. The contractor shall exercise extreme caution when working in the vicinity of overhead power lines. Verify location in the field and protect in place.

4. The contractor shall comply with all local and state requirements relative to the notificatciton of the applicable unerground service alert.

5. At least 2 working days prior to beginning any digging or excavation work, the contractor shall notify underground service alert of Southern California (a.k.a. DigAlert) at www.digalert.org or by phone at 811, to determine locations of existing utilities.

6. In accordance with generally accepted construction practices, the contractor will be solely and completely responsible for the conditions of the job site including safety of all persons and property during performance of the work. The contractor shall ensure that all work is performed in accordance with occupational safety laws, including the design and construction of proper shoring of trenches. The duties of the project engineer do not include review of the adequacy of the contractor's safety in, on, or near the job site.

7. It is the responsibility of the contractor to be knowledgeable about the project specifications and permits. All work shall be completed in compliance with the contract documents. The contractor shall have copies of the most current approved plans, specifications and permit conditions on site during all work operations.

8. The project site and adjacent areas contain sensitive habitat areas for protected wildlife, and may include endangered species. The contractor shall protect wildlife and water quality, and minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

9. Should it appear that the work to be done, or any matter relative thereto, is not sufficiently detailed or explained on these plans or in the specifications, the contractor shall contact the construction manager for such further explanations as may be necessary.

10. Should the contractor find any discrepancies between the conditions existing in the field and the information shown on the drawings, he shall notify the construction manager before proceeding with construction.

SURVEY POINT DESCRIPTORS

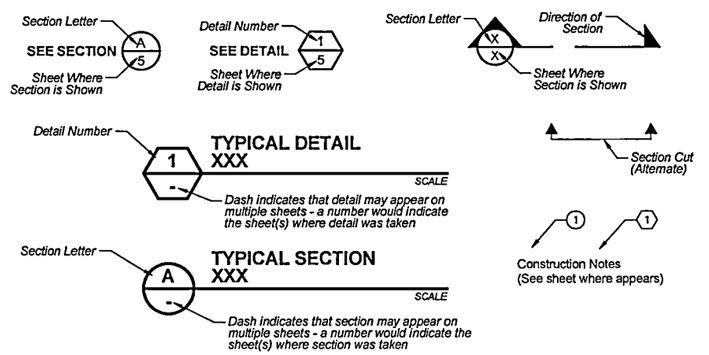
CTBM	Bench Mark (permanent)
CTBT	Bench Mark (temporary)
CTCP	Survey Control Point (permanent)
CTCT	Survey Control Point (temporary)
DIFL	Ditch Flowline
DIGB	Ditch Grade Break
DITO	Ditch Toe
DITP	Ditch Top
ELBX	Electric, Box or Pullbox
ELGY	Electric, Guy Wire
ELPP	Electric, Power Pole
ELSN	Electric, Warning Sign
ELTR	Electric, Transformer
ELTW	Electric, Tower
ELVT	Electric, Vault
FNAP	Fence Angle Point
FNCR	Fence Corner
FNGT	Fence Gate
FNLN	Fence Line
IRCO	Irrigation Concrete Pad
IRCP	Irrigation Control Panel
IRPI	Irrigation Pipe Invert
IRPM	Irrigation Pump
IRPT	Irrigation Pipe Top
IRVL	Irrigation Valve
IRWL	Irrigation Well
LVCL	Levee Centerline
LVGB	Levee Grade Break
LVTO	Levee Toe of Slope
LVTP	Levee Top of Slope
RDCL	Road, Centerline
RDED	Road, Edge of Dirt Road
RDEG	Road, Edge of Gravel Road
RDEP	Road, Edge of Paved Road
RDGB	Road Grade Break
RDSH	Road Shoulder
RDSN	Road Sign
RDTO	Road, Toe of Slope
RDTP	Road, Top of Slope
SDMH	Storm Drain, Manhole
SDPI	Storm Drain, Pipe Invert
SDPT	Storm Drain, Pipe Top
SSMH	Sanitary Sewer, Manhole
SWFL	Swale Flowline
SWGB	Swale Grade Break
SWTO	Swale Toe
SWTP	Swale Top
TFBL	Topo Feature, Building
TFBR	Topo Feature, Brush
TFCO	Topo Feature, Concrete (pad, slab, etc.)
TFFL	Topo Feature, Flowline
TFGB	Topo Feature, Grade Break
TFGS	Topo Feature, Ground Shot
TFRK	Topo Feature, Rock Or Rocky Area Boundary
TFTL	Topo Feature, Tree line
TFTO	Topo Feature, Grade Break at Toe
TFTP	Topo Feature, Grade Break at Top
TFTR	Topo Feature, Tree
WAEW	Edge of Water
WAHW	High Water Mark
WAUW	Under Water Ground Shot
WAWS	Water Surface
WCFL	Water Control Structure, Flowline/Invert at Structure
WCFR	Water Control Structure, Frame Top
WCHW	Water Control Structure, Headwall
WCPI	Water Control Structure, Pipe Invert at Outlet
WCPT	Water Control Structure, Pipe Top at Outlet
WCST	Water Control Structure, Top of Structure
WCWW	Water Control Structure, Wing Wall

ABBREVIATIONS

AB	Aggregate Base
AC	Acre
APPROX	Approximate
BM	Benchmark
CAP	Corrugated Aluminum Pipe
CC	Center to Center
CF	Cubic Foot
CFS	Cubic Foot Per Second
CL	Centerline
CMP	Corrugated Metal Pipe
CMPA	Corrugated Metal Arch Pipe
CONC	Concrete
CP	Control Point
CY	Cubic Yard
DEMO	Demolish
DIA	Diameter
Dp	Pipe Diameter
Dr	Riser Diameter
DU	Ducks Unlimited, Inc.
D/S	Downstream
E	East
EG	Existing Ground
EL	Elevation
EX, EXIST	Existing
FRG	Final Rough Grade
FG	Finished Grade
FL	Flowline
FT	Foot, Feet
FTG	Fitting, Footing
GA	Gauge
GB	Grade Break
H	Height
HDPE	High-Density Polyethylene
ID	Inside Diameter
IE	Invert Elevation
IN	Inch, Inches
INV	Invert
IPS	Iron Pipe Size
L	Length, Left
LBF	Pounds-Force
LF	Linear Feet
MAINT	Maintenance
MAX	Maximum
MIN	Minimum
MISC	Miscellaneous
(N)	New
N	North
NIC	Not In Contract
NTS	Not To Scale
OC	On Center
OD	Outside Diameter
PIP	Pressure Irrigation Pipe
PP	Power Pole
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
QTY	Quantity
R	Right
RCB	Reinforced Concrete Box
RD	Road
REF	Reference Dimension
REQD	Required
ROW	Right Of Way
S	South
SCH	Schedule
SS	Stainless Steel
SDR	Standard Dimension Ratio
SF	Square Feet
SHT	Sheet
SP	Special
SPECS	Specifications
SY	Square Yard
STA	Station
STD	Standard
TBD	To Be Determined by Engineer
TBM	Temporary Benchmark
TE	Top Elevation
TEMP	Temporary
TOL	Top of Levee
TOB	Top of Berm
TYP	Typical
USA	Underground Service Alert
U/S	Upstream
VLV	Valve
W	Width, West (where applicable)
W/	With
WCS	Water Control Structure
WS	Water Surface
WSEL	Water Surface Elevation
WWF	Welded Wire Fabric
X:1	Slope, Horizontal:Vertical

LEGEND & STANDARD SYMBOLS

DETAILING CONVENTIONS



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90% DESIGN

REVISIONS			
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DUCKS UNLIMITED

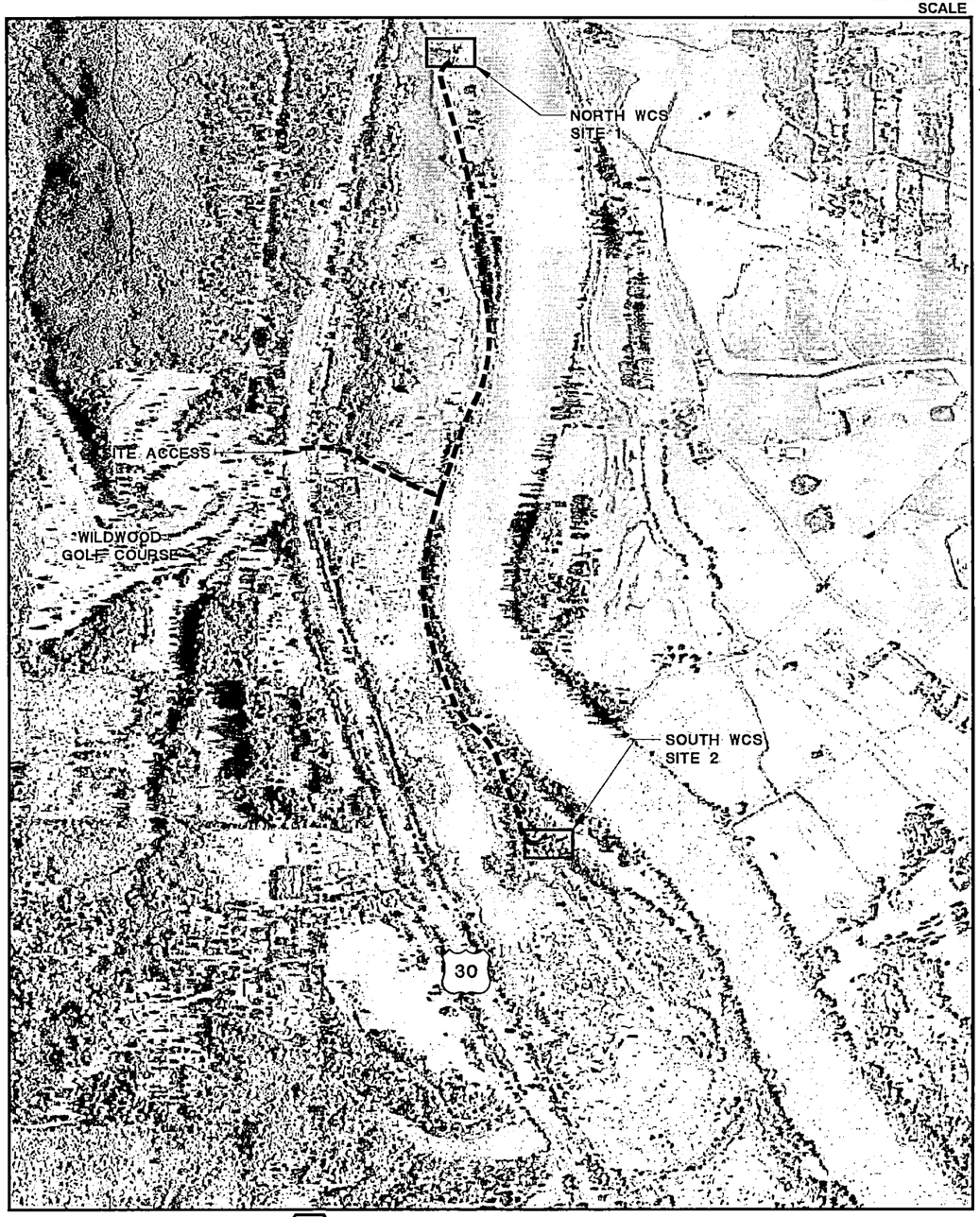
PROJECT NO. US-OR-32-8 DATE: 6/21/2016

METRO: MULTNOMAH CHANNEL & SMITH BYBEE UNITS
WATER CONTROL STRUCTURE IMPOVEMENTS

DRAWING INFORMATION

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	JPB
CHECKED BY:	
SHEET NO.	2 OF 18

0 600 1,200 FEET
SCALE



1 MULTNOMAH CHANNEL NORTH & SOUTH SITE
3 SITE ACCESS PLAN

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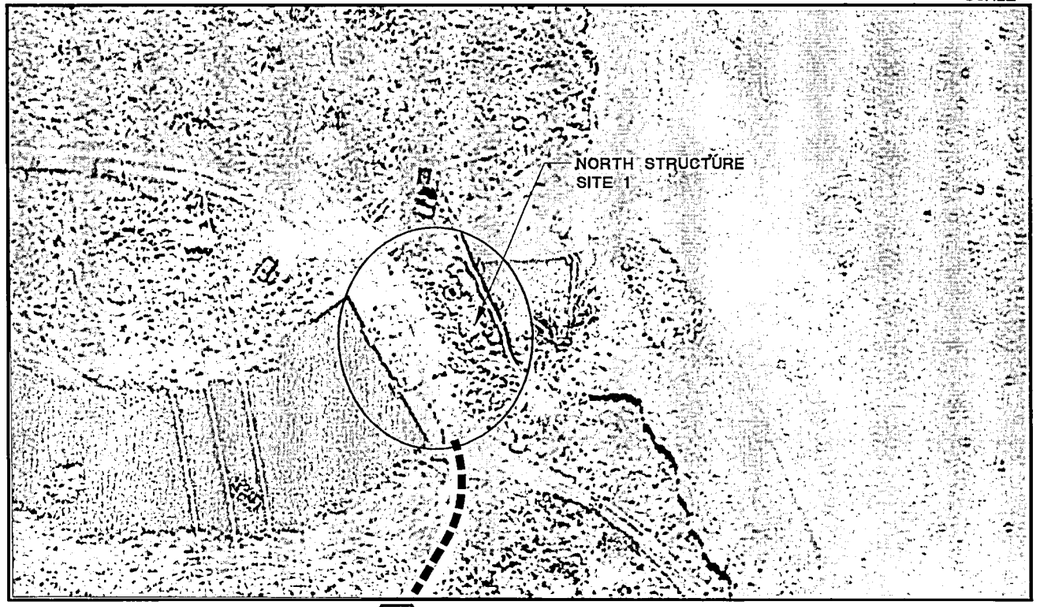
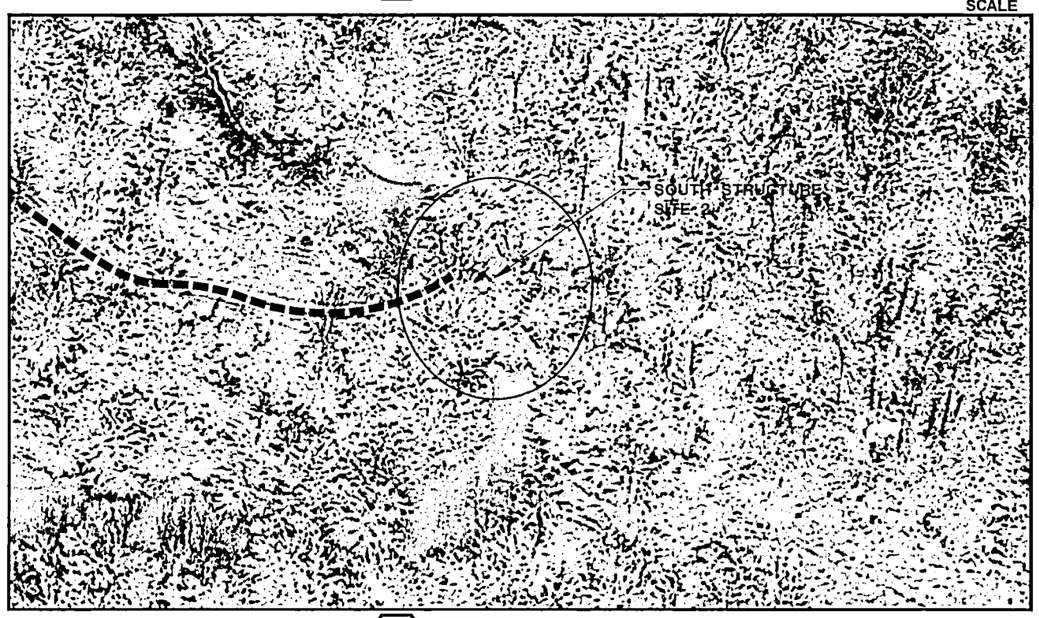
SCALE



2 NORTH STRUCTURE
3 SITE 1 EXISTING SITE PLAN

0 30 60 FEET
SCALE



1 SOUTH STRUCTURE
3 SITE 2 EXISTING SITE PLAN

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REVISIONS				
REV. NO.	DESCRIPTION	DATE	APPROVED	
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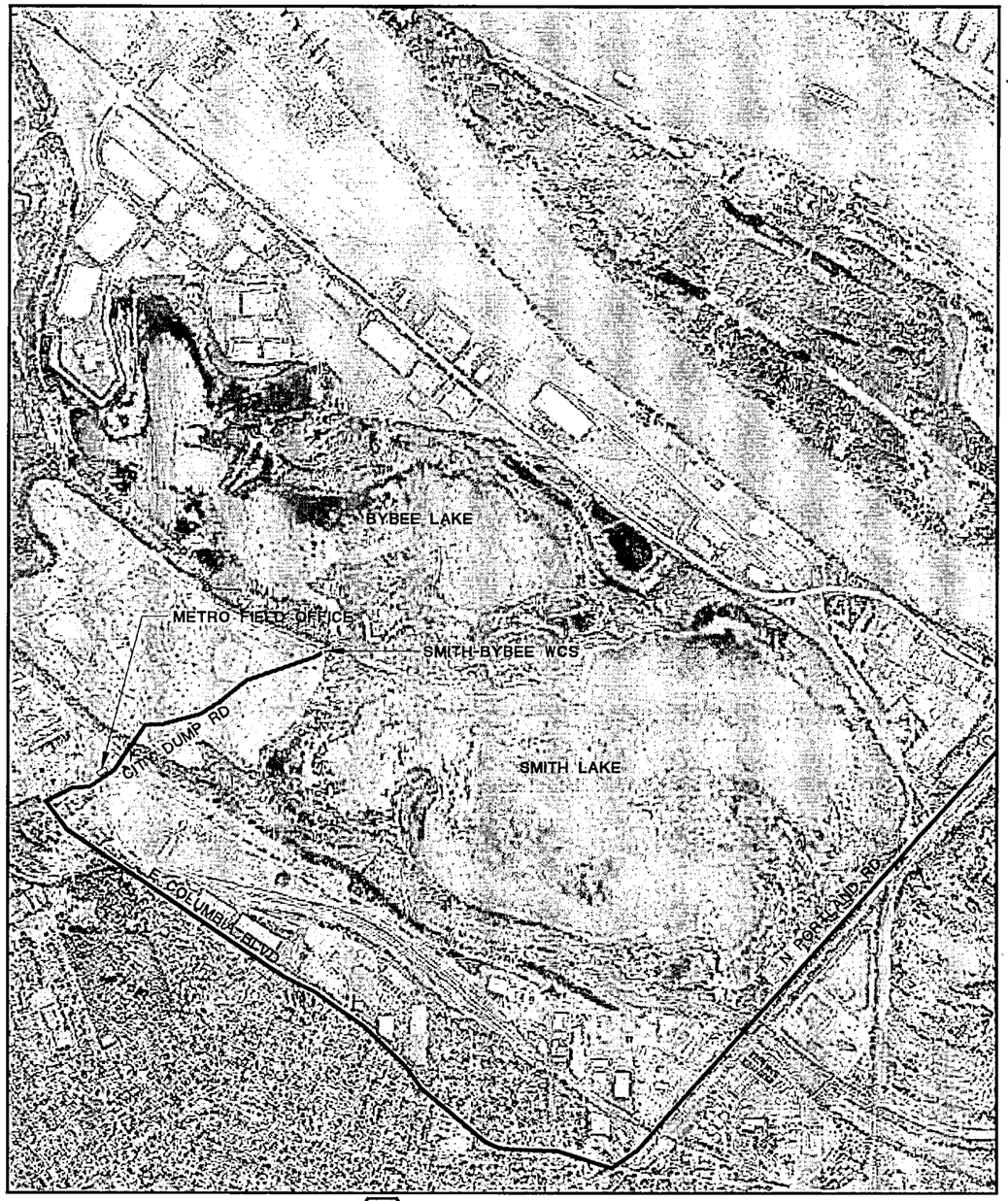
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/21/2016
METRO: MULTNOMAH CHANNEL
NORTH & SOUTH SITES
WATER CONTROL STRUCTURE IMPOVEMENTS
SITE ACCESS

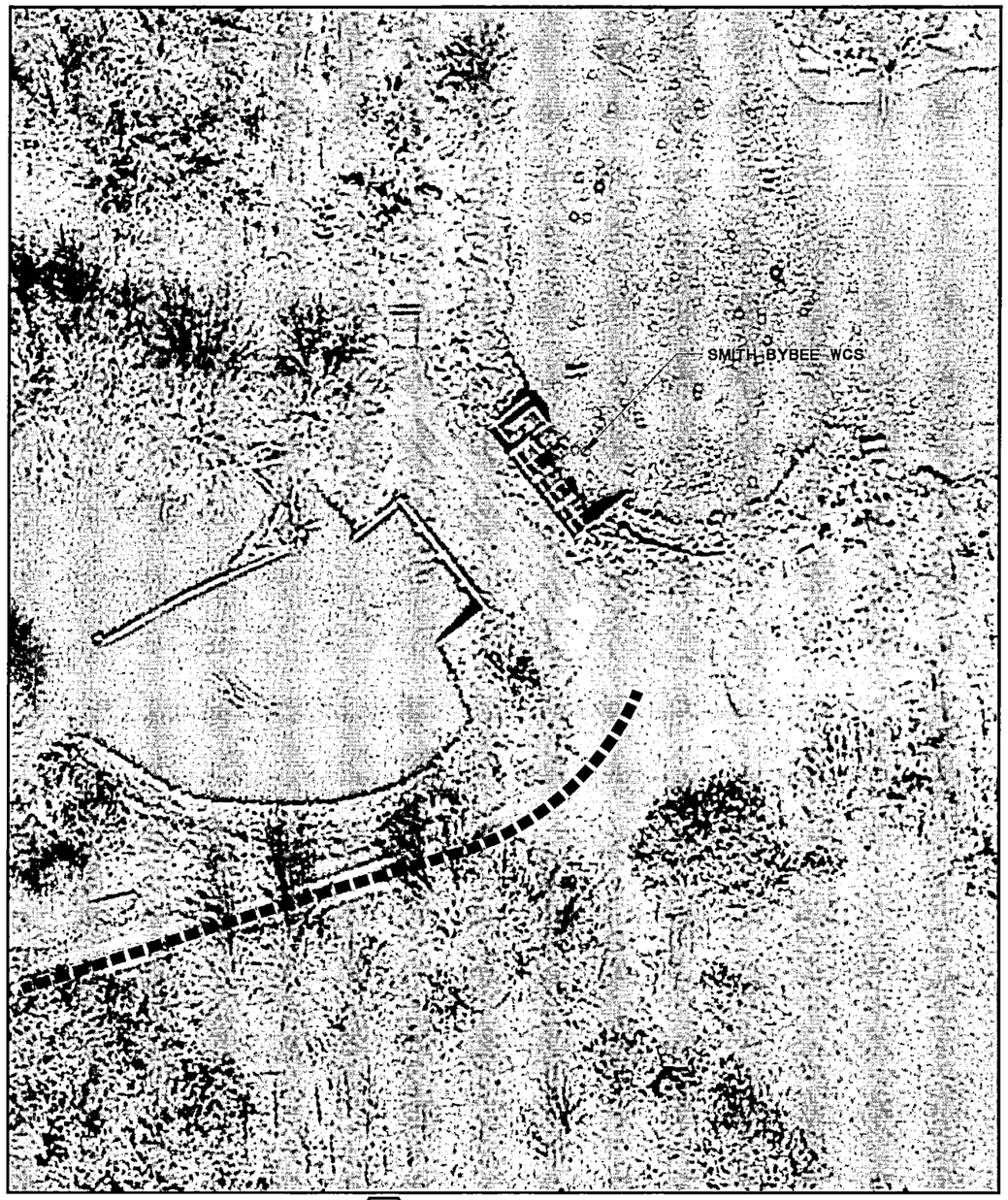
DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	JPS
CHECKED BY:	
SHEET NO.	3 of 18

0 600 1,200 FEET
SCALE



1 SMITH BYBEE
4 VICINITY MAP

0 20 40 FEET
SCALE



2 SMITH BYBEE
4 SITE ACCESS

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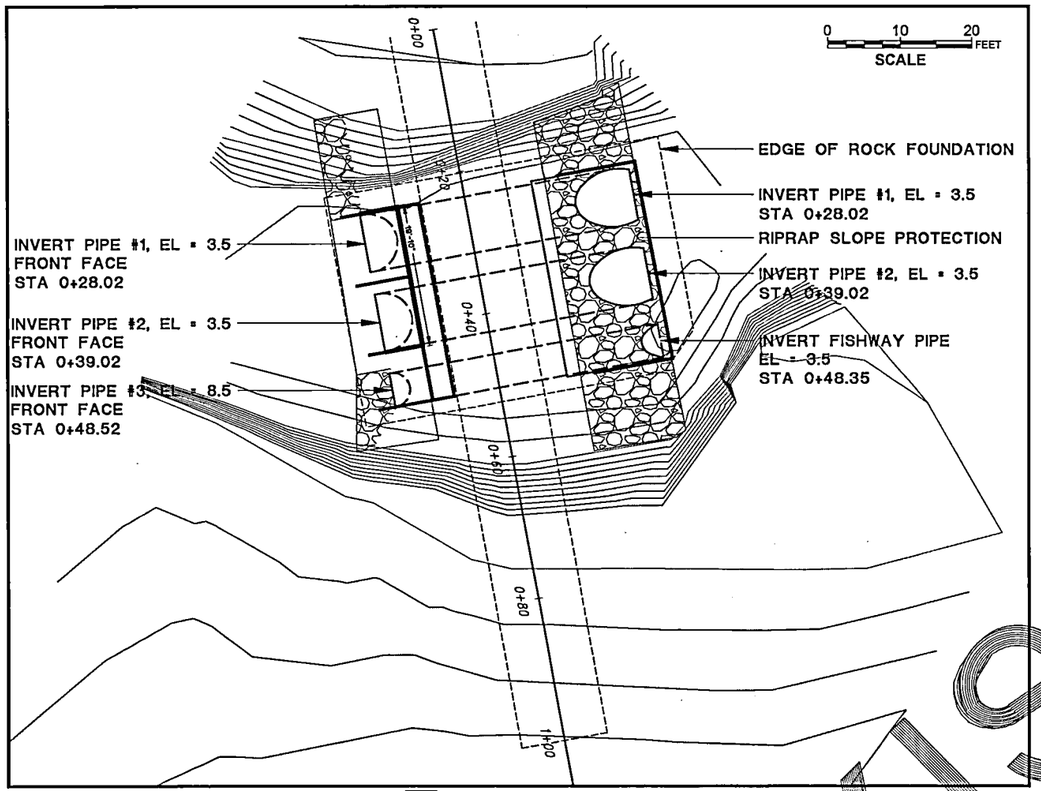
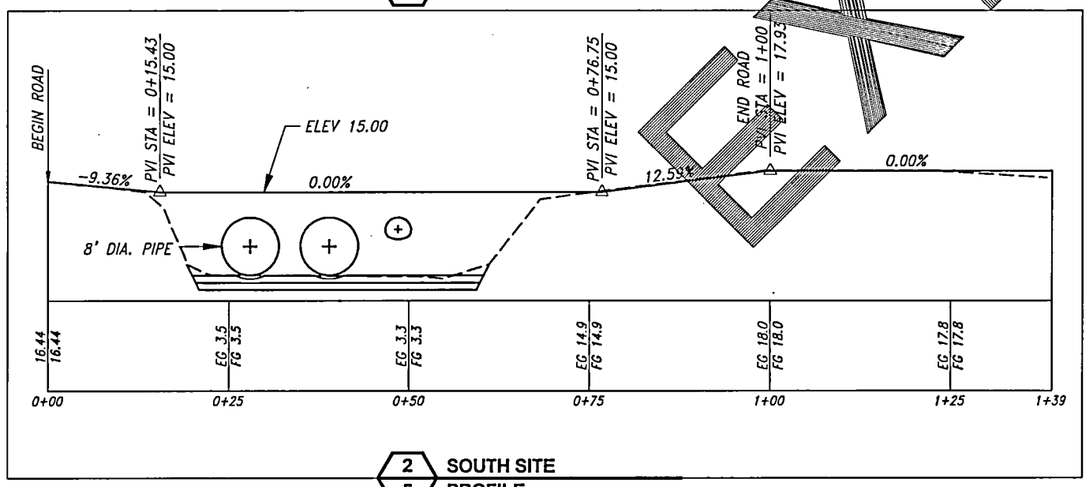
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/20/2016
METRO:
SMITH BYBEE
SITE ACCESS

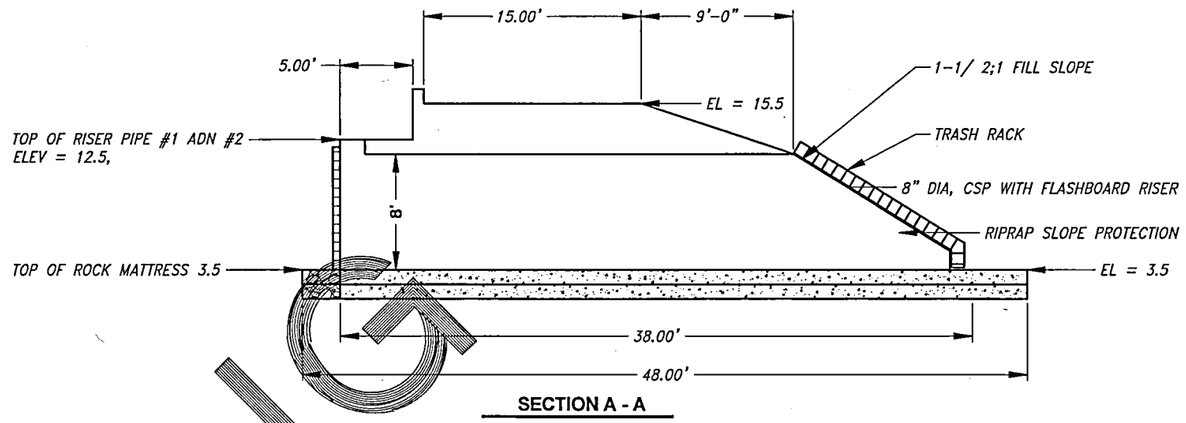
DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. 4 of 18



1/5 SOUTH SITE
EXISTING PLAN VIEW



2/5 SOUTH SITE
PROFILE



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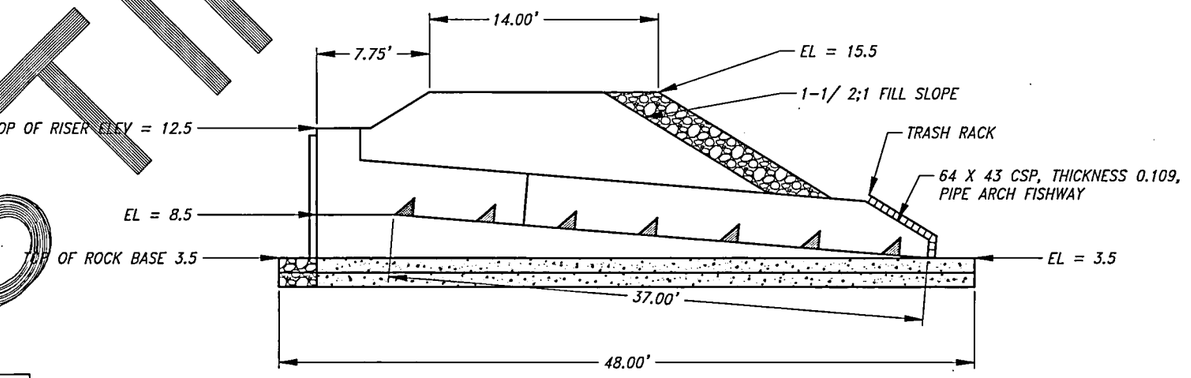
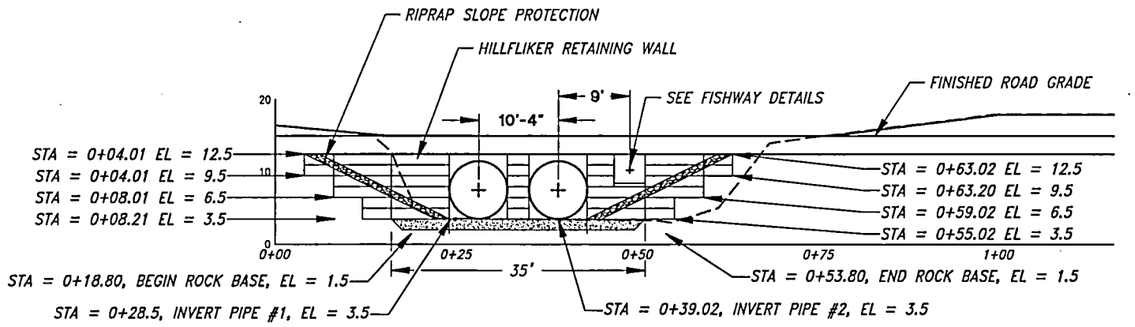


SECTION B - B



3/5 FRONT FACE
ELEVATION

90%DESIGN

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DUCKS UNLIMITED

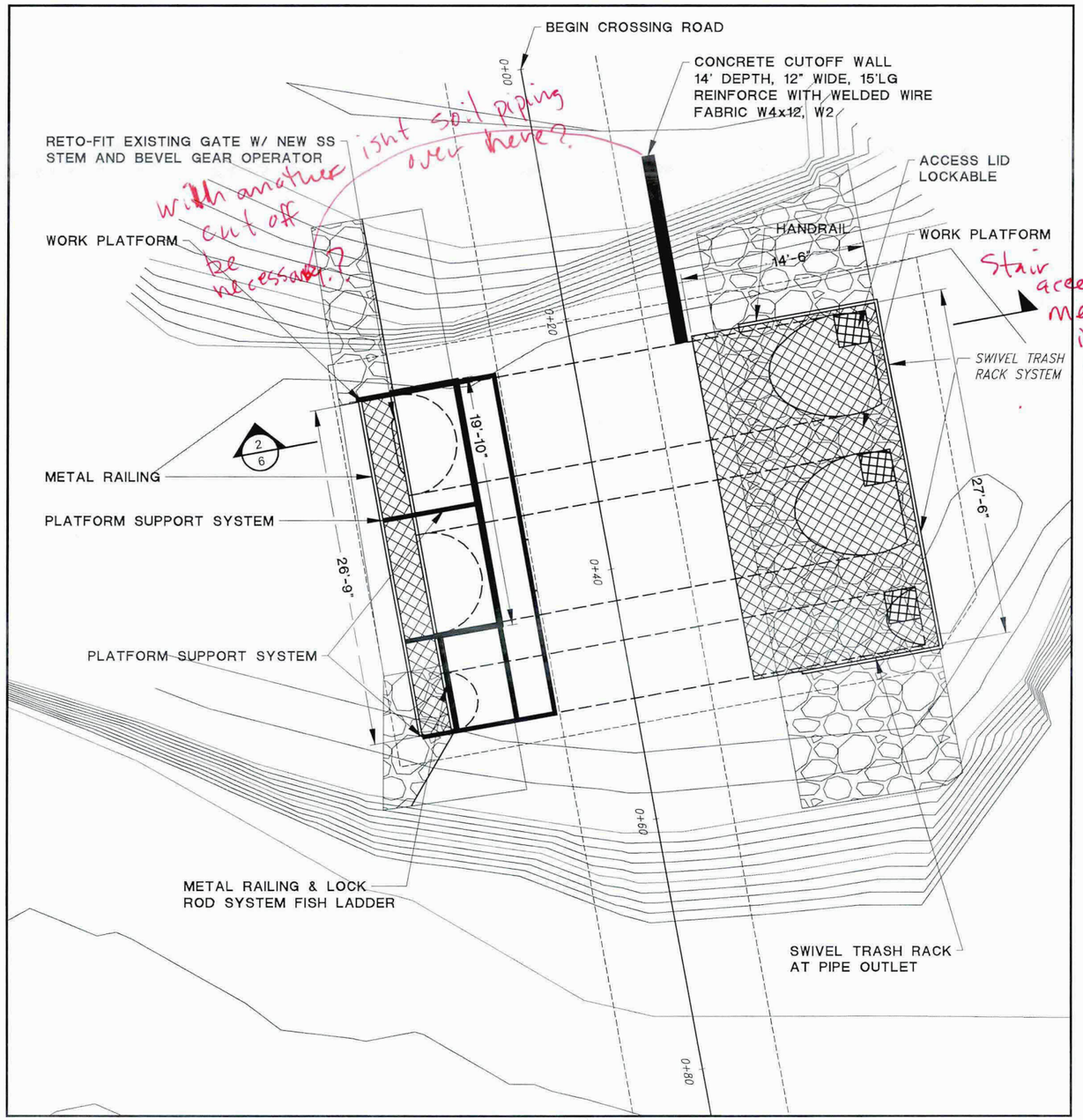
PROJECT NO. US-OR-32-8 DATE: 6/22/2016

METRO: MULTNOMAH CHANNEL
SOUTH SITE

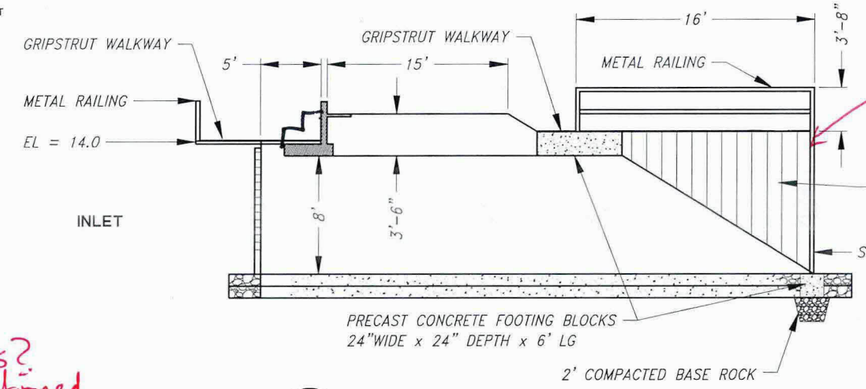
EXISTING SITE PLAN

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
SHEET NO.	5 of 18

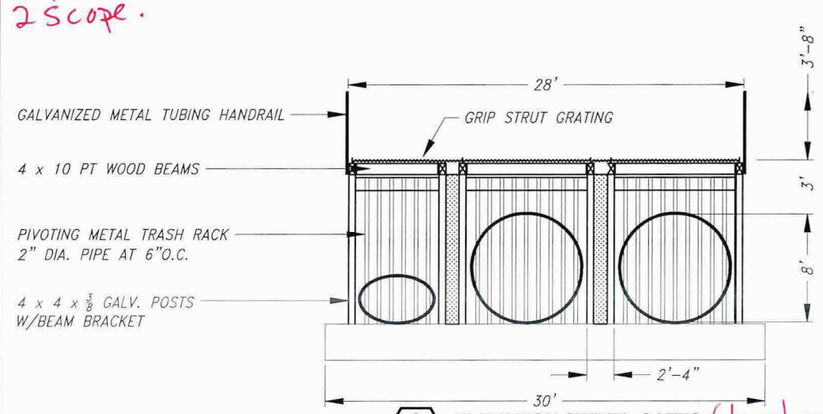
0 5 10 FEET
SCALE



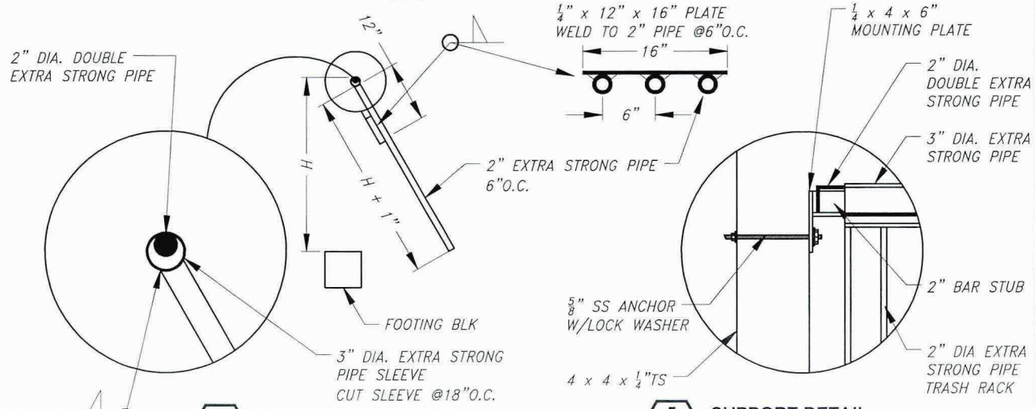
1/6 SOUTH SITE WCS IMPROVEMENTS



2/6 WOOD BEAM AND METAL SUPPORT STRUCTURE SECTION



3/6 ELEVATION SWIVEL GATES (trash racle)



4/6 HANGING BAR DETAIL TRASH RACK

5/6 SUPPORT DETAIL TRASH RACK

90%DESIGN

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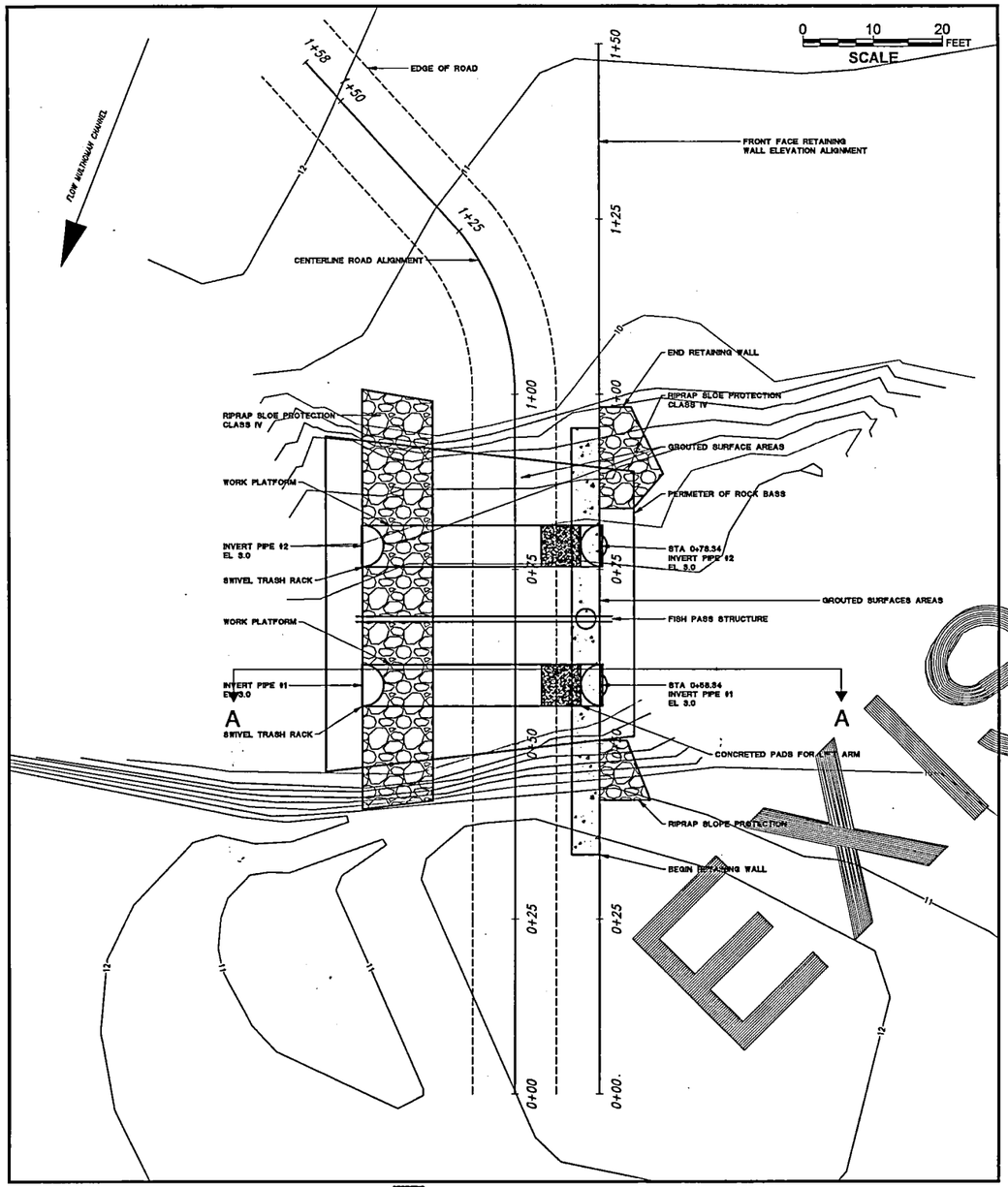
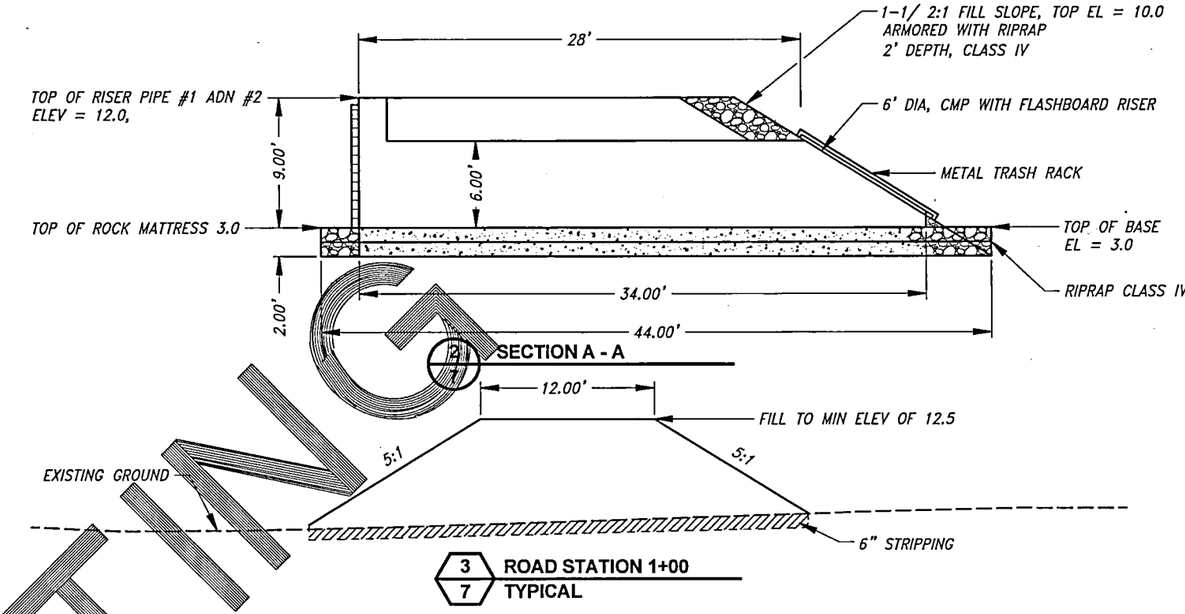
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL SOUTH SITE
WCS IMPROVEMENTS

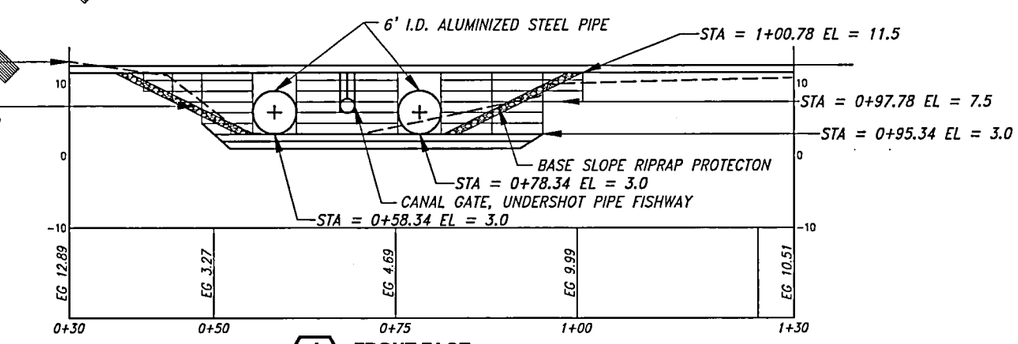
DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. **6 of 18**



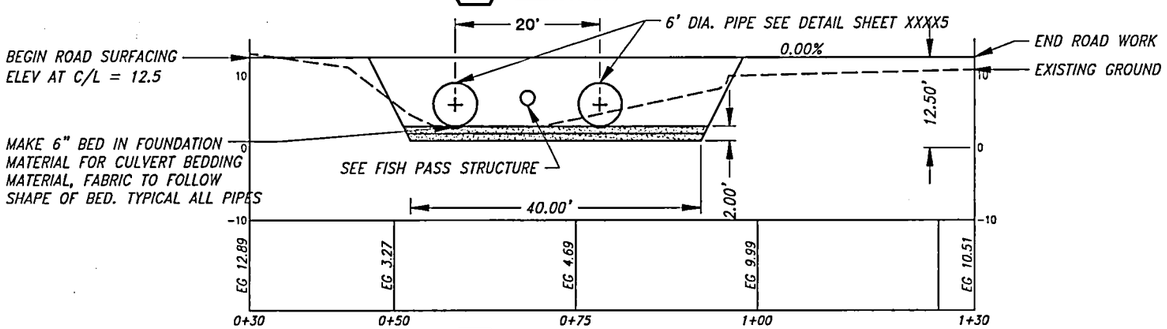
1 / 7 NORTH SITE EXISTING PLAN VIEW



3 / 7 ROAD STATION 1+00 TYPICAL



4 / 7 FRONT FACE ELEVATION



5 / 7 ROAD CENTERLINE PROFILE

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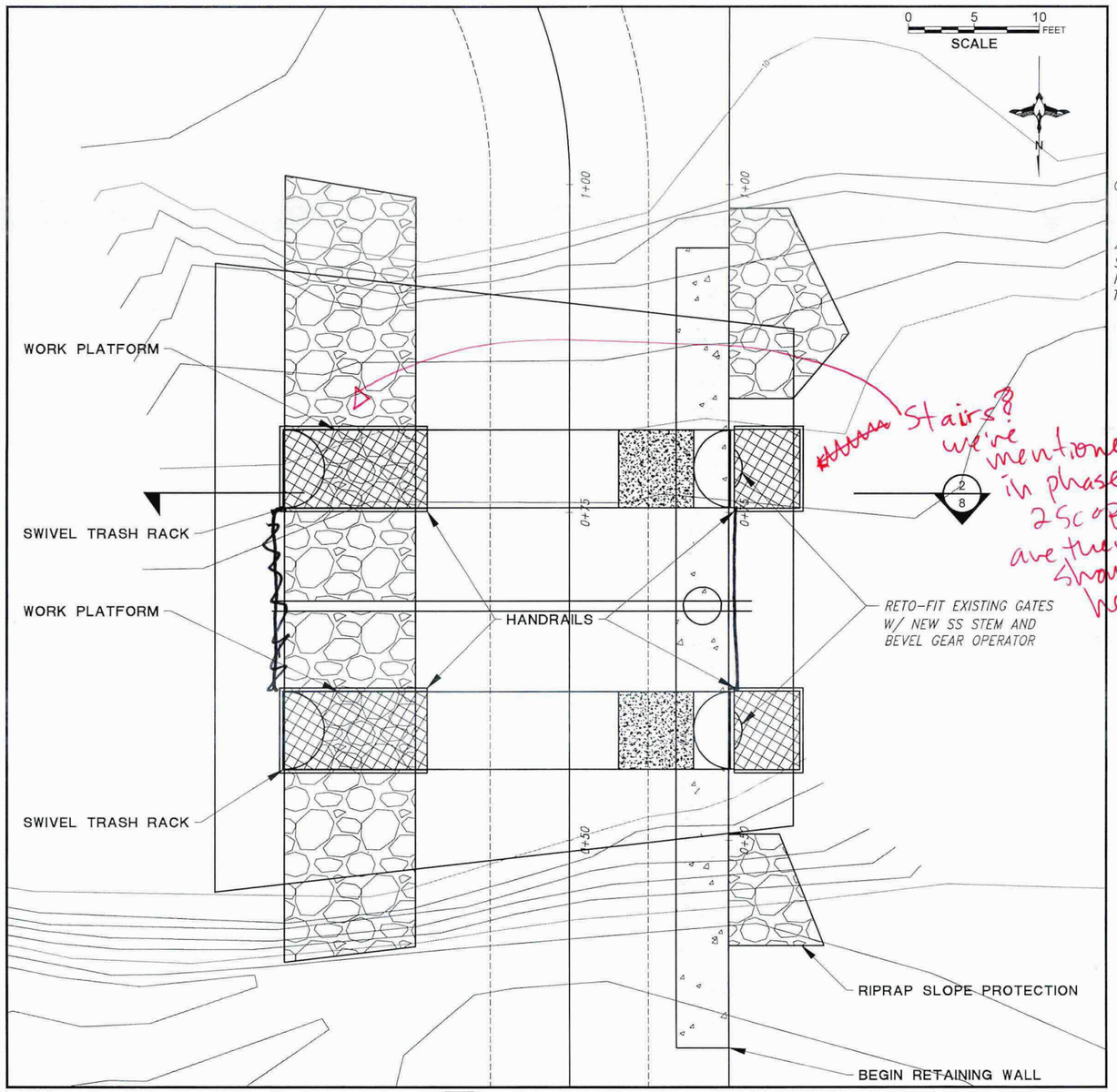
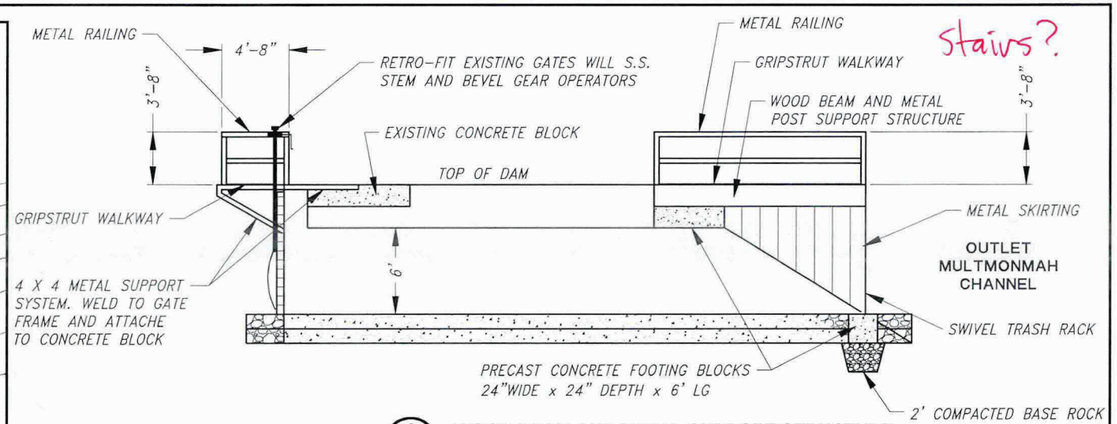
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL
NORTH SITE
EXISTING SITE PLAN

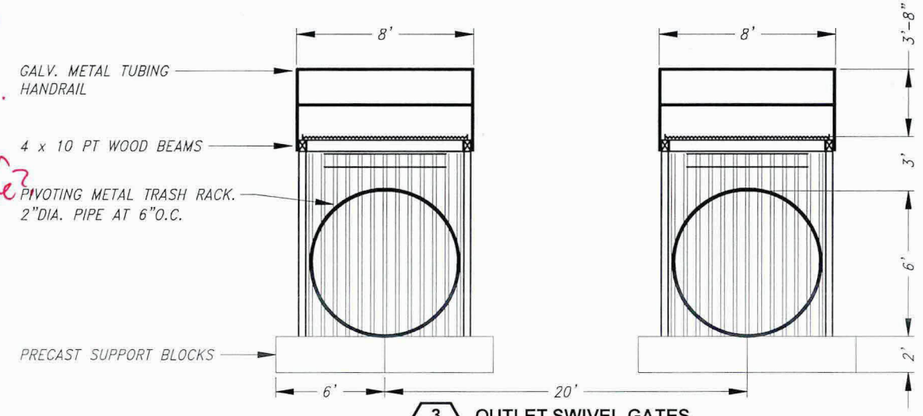
DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. 7 of 18



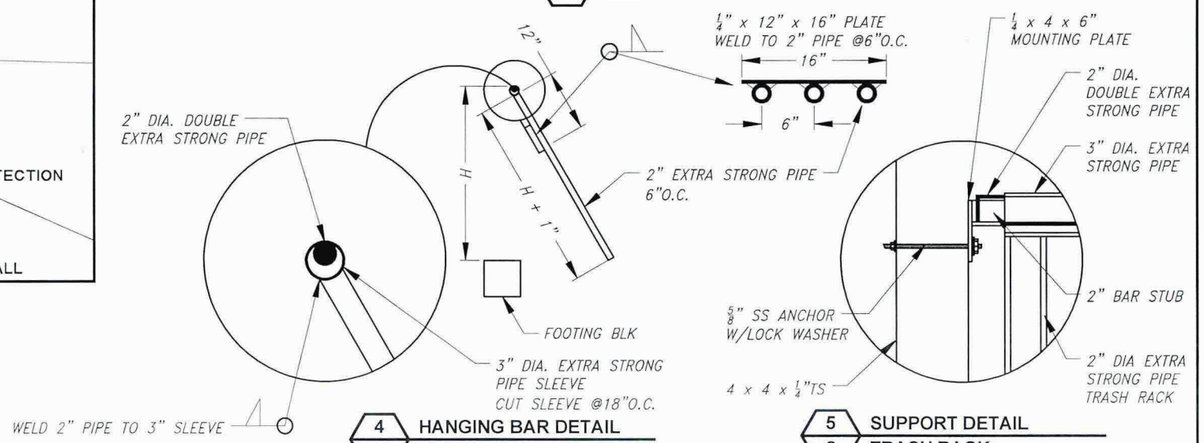
1/8 NORTH SITE PROPOSED PLAN



2/8 WOOD BEAM AND METAL SUPPORT STRUCTURE SECTION



3/8 OUTLET SWIVEL GATES ELEVATION



4/8 HANGING BAR DETAIL TRASH RACK

5/8 SUPPORT DETAIL TRASH RACK

90%DESIGN

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REVISIONS			
REV. NO.	DESCRIPTION	DATE	APPROVED
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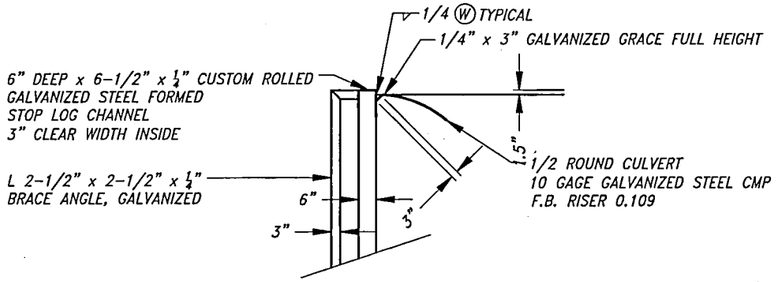
1			

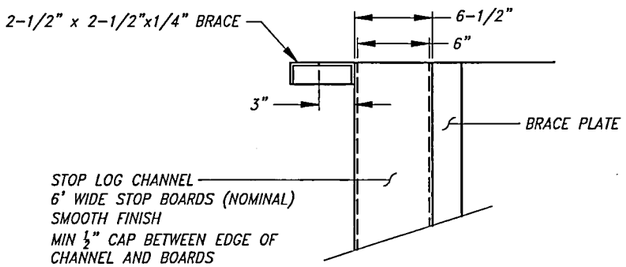
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL
NORTH SITE
WCS IMPROVEMENTS

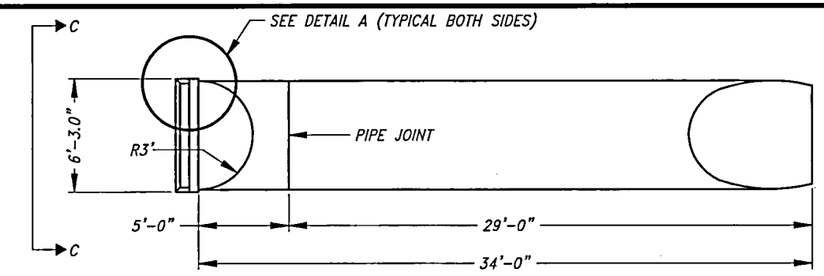
DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
SHEET NO.	8 of 18



PLAN VIEW DETAIL A

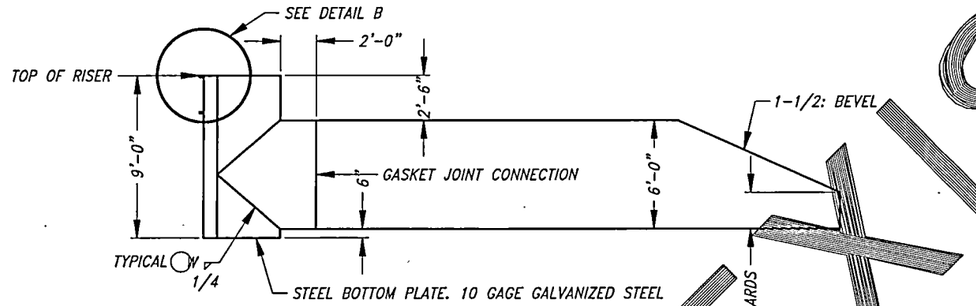


ELEVATION VIEW DETAIL B

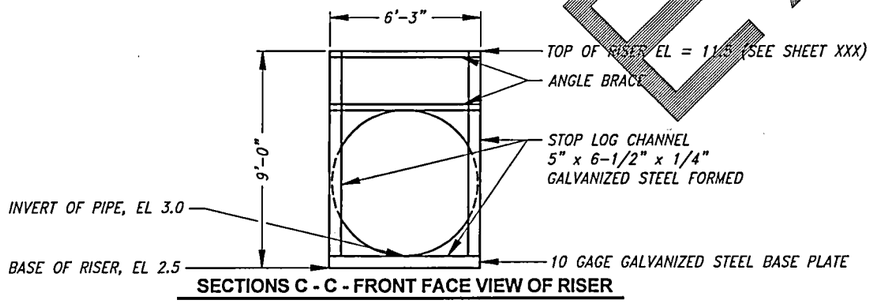


PLAN VIEW OF CULVERT WITH FASHBOARD RISER

RISER AND CULVERT ARE BOTH 10 GAGE, RISER MAY BE GALVANIZED. CULVERT TO BE ALUMINUM STEEL

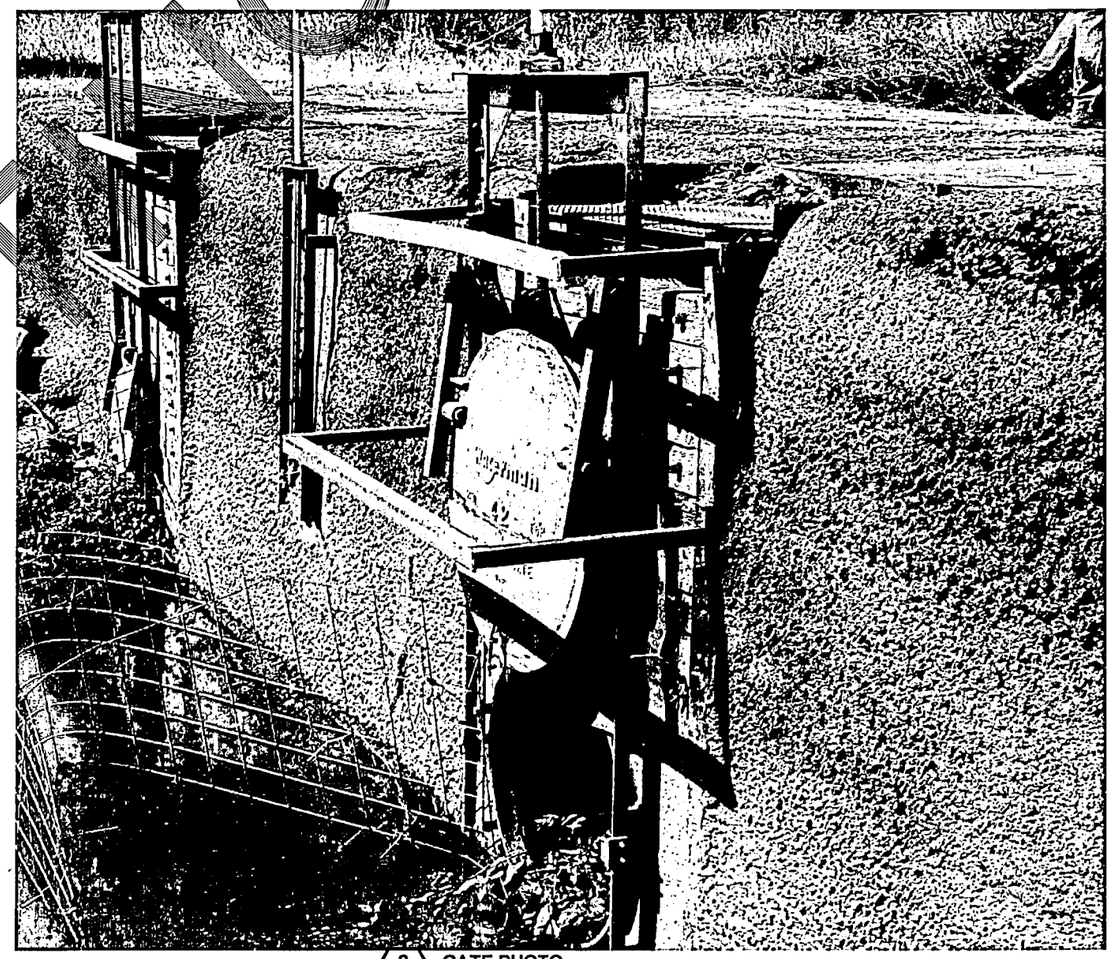


ELEVATION VIEW OF CULVERT WITH FLASHBOARD RISER



SECTIONS C - C - FRONT FACE VIEW OF RISER

1/9 EXISTING DETAILS
NORTH SITE



2/9 GATE PHOTO

90%DESIGN

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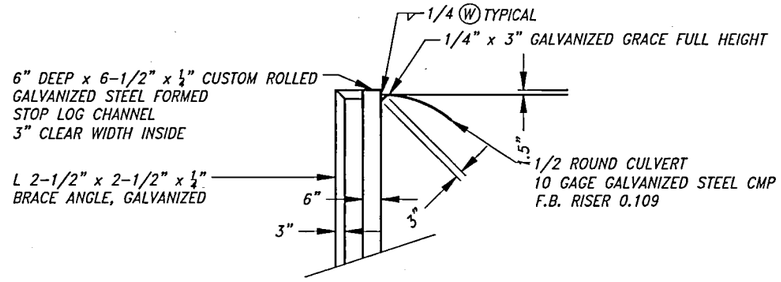
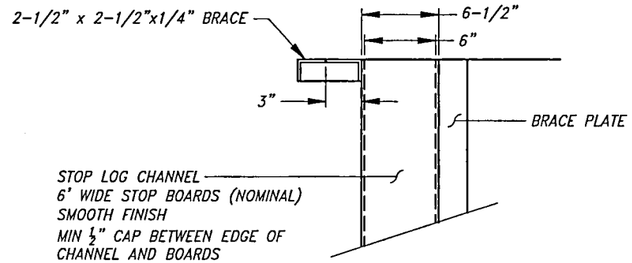
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL
NORTH SITE
EXISTING CULVERT

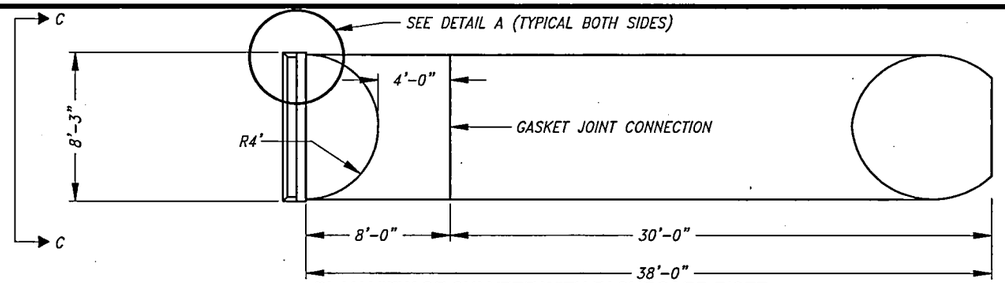
DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
SHEET NO.	9 of 18



PLAN VIEW DETAIL A

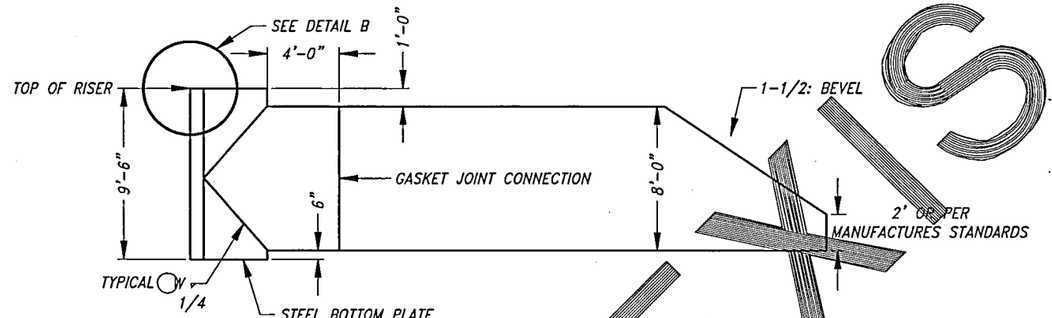


ELEVATION VIEW DETAIL B

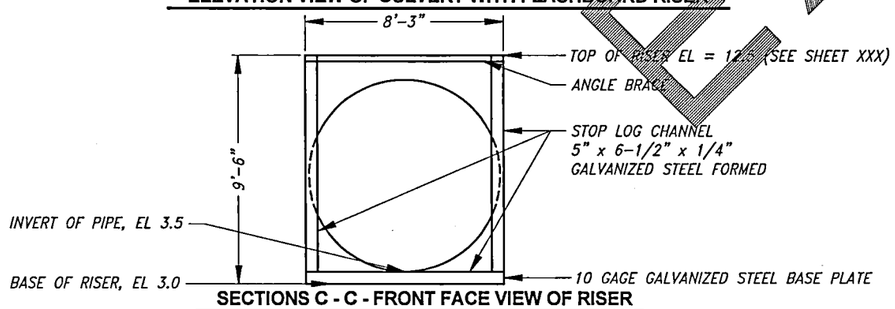


PLAN VIEW OF CULVERT WITH FASHBOARD RISER

RISER AND CULVERT ARE BOTH 10 GAGE, RISER MAY BE GALVANIZED. CULVERT TO BE ALUMINUM STEEL

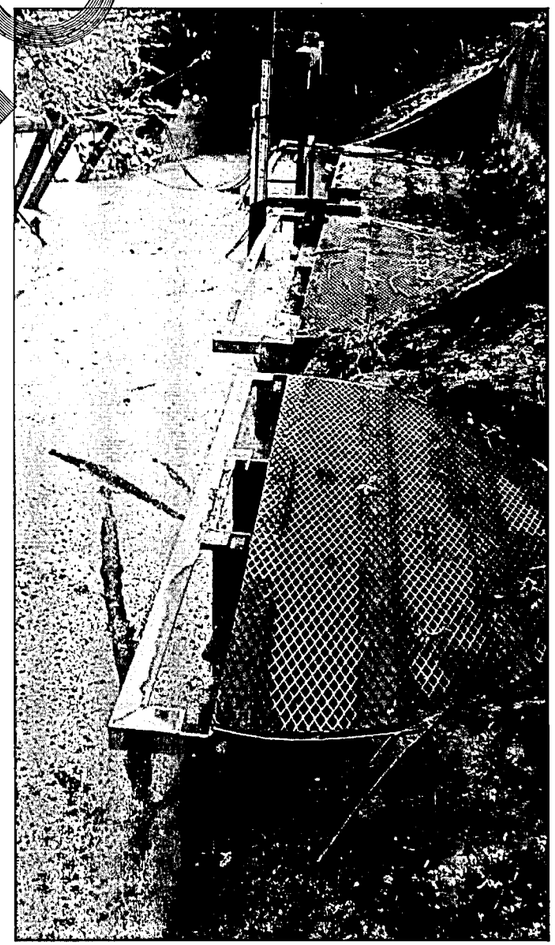


ELEVATION VIEW OF CULVERT WITH FLASHBOARD RISER



SECTIONS C - C - FRONT FACE VIEW OF RISER

1 EXISTING DETAILS
10 SOUTH SITE



EXISTING

90%DESIGN

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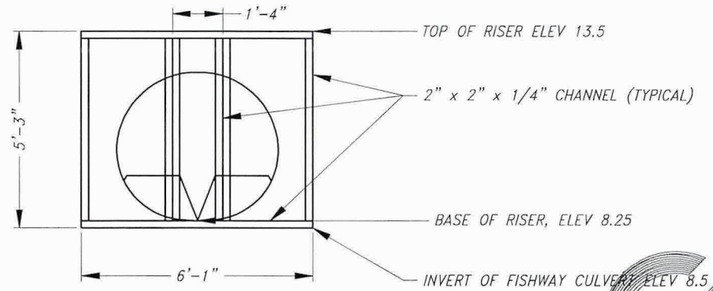
DUCKS UNLIMITED

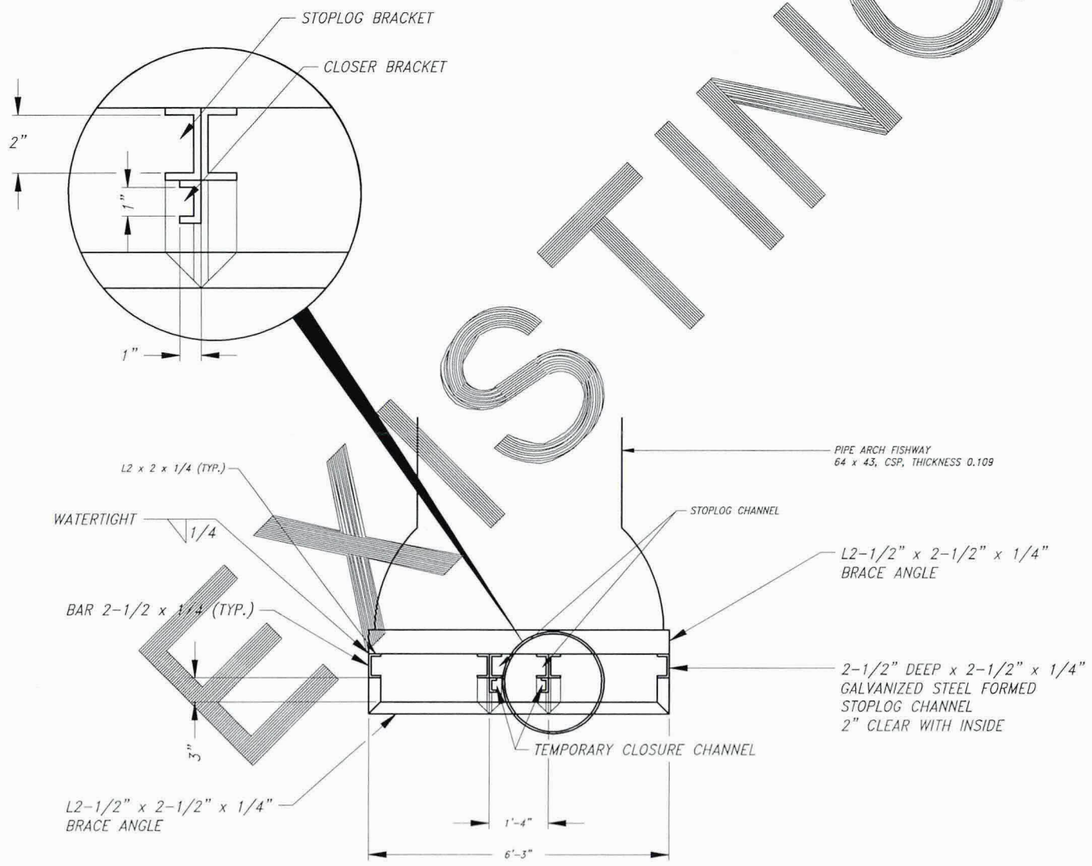
PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL
SOUTH SITE

EXISTING CULVERT

DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. 10 of 18



SECTION D - D FRONT FACE RISER



SECTION E - E TOP VIEW RISER

1 / 11 EXISTING FISHWAY STOPLOGS SOUTH SITE

EXISTING

Unauthorized Changes & Uses
The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes must be in writing and must be approved by the preparer of these plans.

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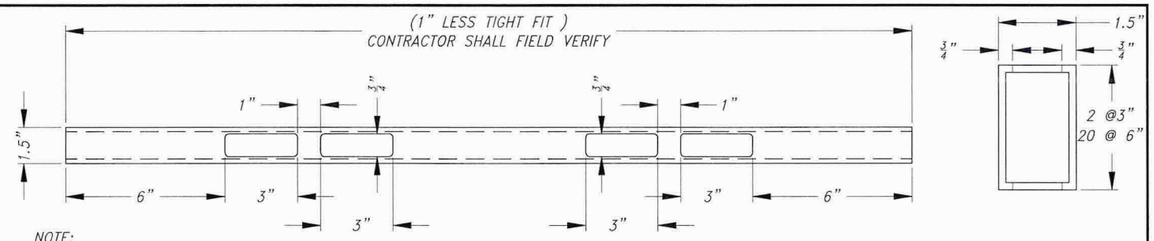
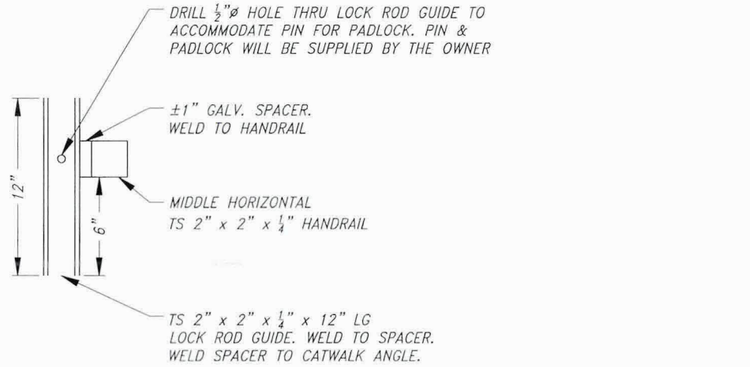


NOTE:
ALL ALUMINUM STOPLOGS SHALL BE SUPPLIED BY THE CONTRACTOR

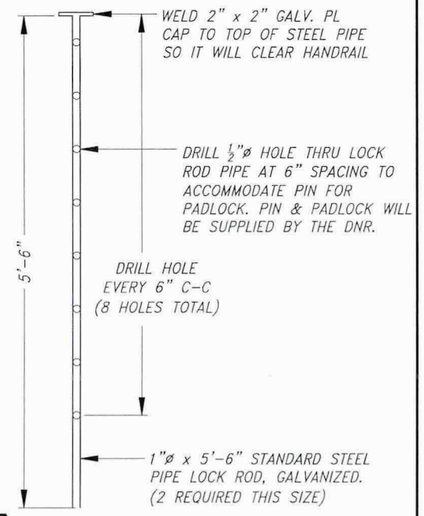
CONTRACTOR IS RESPONSIBLE FOR CUTTING STOPLOGS TO PROPER LENGTH AND FABRICATING THE HOLES IN ALL STOPLOGS AS SHOWN. THE $\frac{3}{4}$" DIMENSION IS CRITICAL AND NEEDS TO BE CENTERED IN THE STOPLOG TO AVOID LEAKAGE. THE FINISHED SURFACE SHALL BE SMOOTH TO PROVIDE A FLAT SURFACE FOR THE STOPLOG.

ALUMINUM STOPLOGS:	2	STOPLOGS, 1.5" x 3" x $\frac{1}{4}$"
CONTRACTOR SUPPLIES:	20	STOPLOGS, 1.5" x 6" x $\frac{1}{4}$" WITH LIFTING HOLES

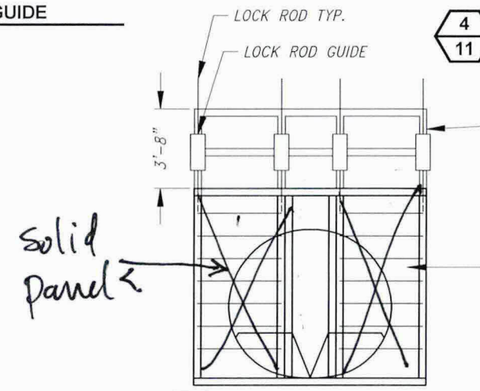
2 / 11 ALUMINUM STOPLOG TYPICAL



3 / 11 LOCK ROD GUIDE TYPICAL



4 / 11 LOCK ROD GUIDE TYPICAL



5 / 11 STOPLOGS SOUTH SITE

Does this refer to center bay of structure? or center of fish way bay?

Stop logs only in Fishway

90% DESIGN

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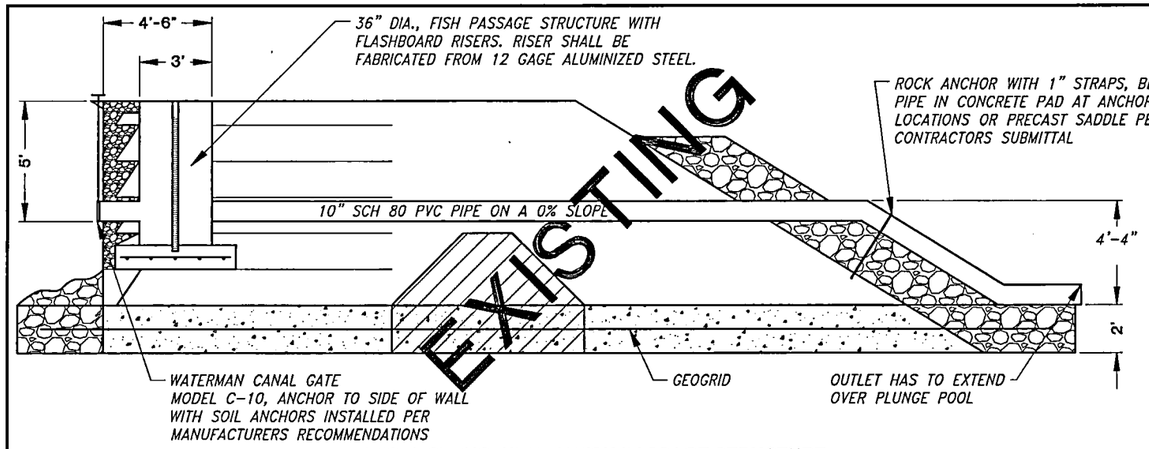
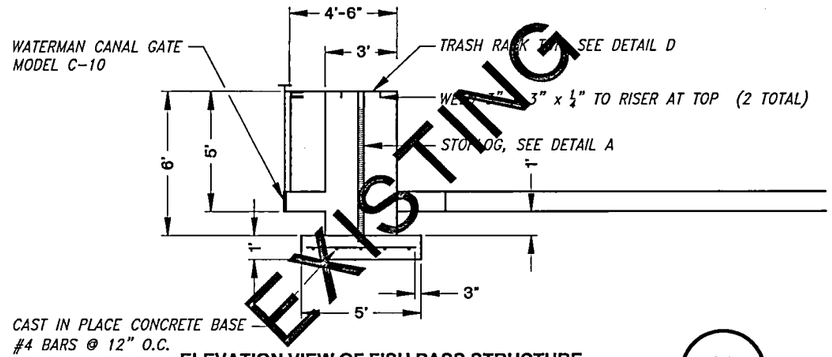
DUCKS UNLIMITED

PROJECT NO: US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL SOUTH SITES
ALUMINUM STOPLOGS & LOCK RAIL SYSTEM

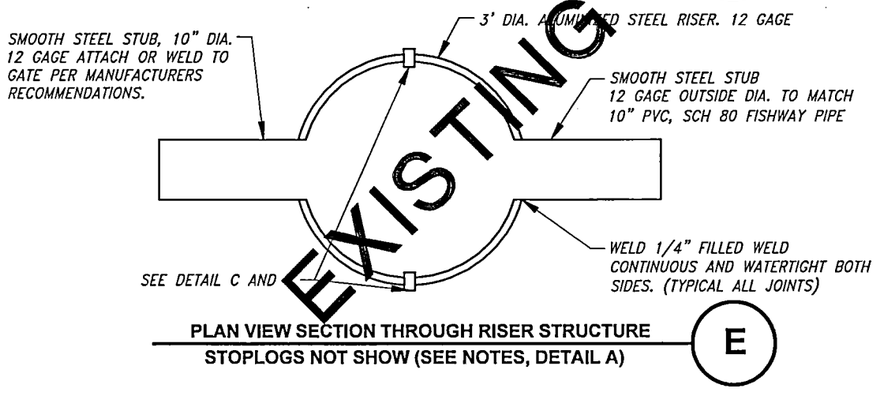
DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. **11 of 18**



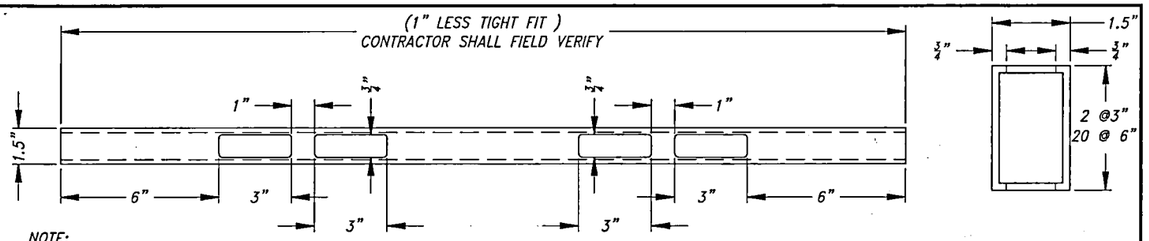
TYPICAL STRUCTURE AT FISH PASSAGE STRUCTURE
SITE #1



ELEVATION VIEW OF FISH PASS STRUCTURE
SITE #1 — B



PLAN VIEW SECTION THROUGH RISER STRUCTURE
STOPLOGS NOT SHOW (SEE NOTES, DETAIL A) — E



NOTE:
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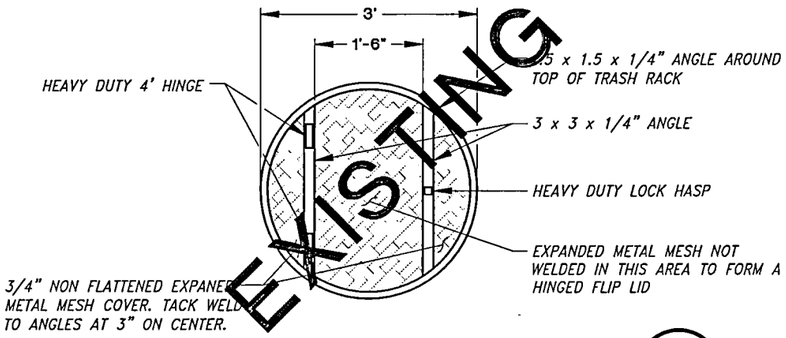
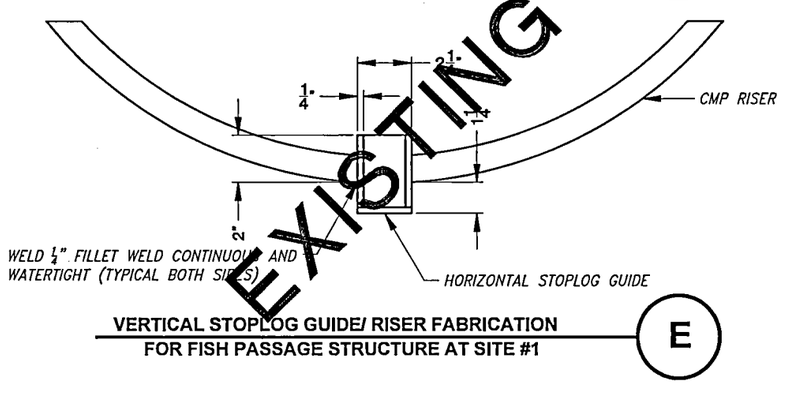
CONTRACTOR IS RESPONSIBLE FOR CUTTING STOPLOGS TO PROPER LENGTH AND FABRICATING THE HOLES IN ALL STOPLOGS AS SHOWN. THE 3/4" DIMENSION IS CRITICAL AND NEEDS TO BE CENTERED IN THE STOPLOG TO AVOID LEAKAGE. THE FINISHED SURFACE SHALL BE SMOOTH TO PROVIDE A FLAT SURFACE FOR THE STOPLOG.

ALUMINUM STOPLOGS:	2	STOPLOGS, 1.5" x 3" x 1/4"
CONTRACTOR SUPPLIES:	20	STOPLOGS, 1.5" x 6" x 1/4" WITH LIFTING HOLES

2 / 12 ALUMINUM STOPLOG TYPICAL



TRASH RACK DETAIL - TOP OF FISH PASS STRUCTURE — D



VERTICAL STOPLOG GUIDE/ RISER FABRICATION
FOR FISH PASSAGE STRUCTURE AT SITE #1 — E

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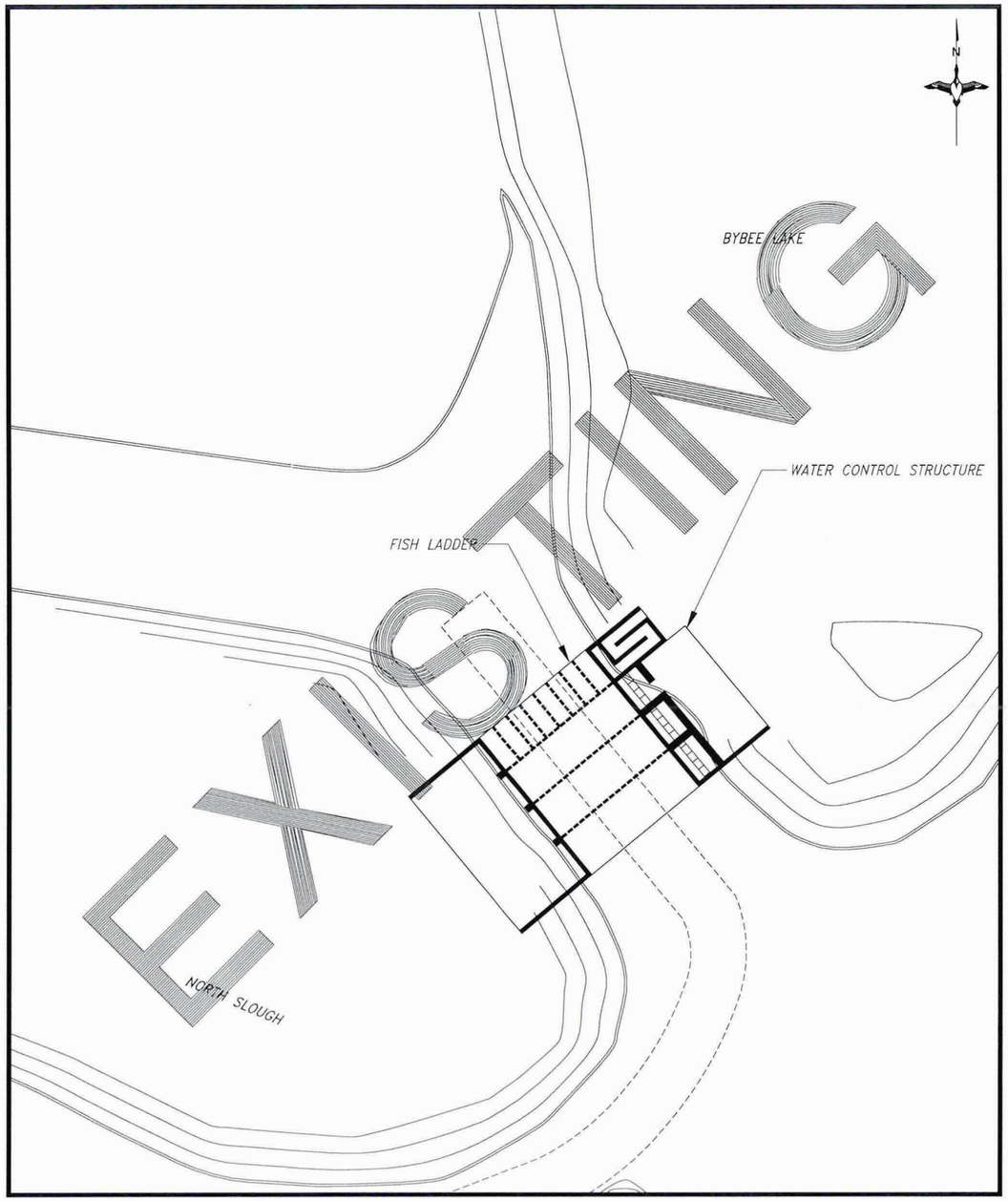
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: MULTNOMAH CHANNEL NORTH SITES
ALUMINUM STOPLOGS

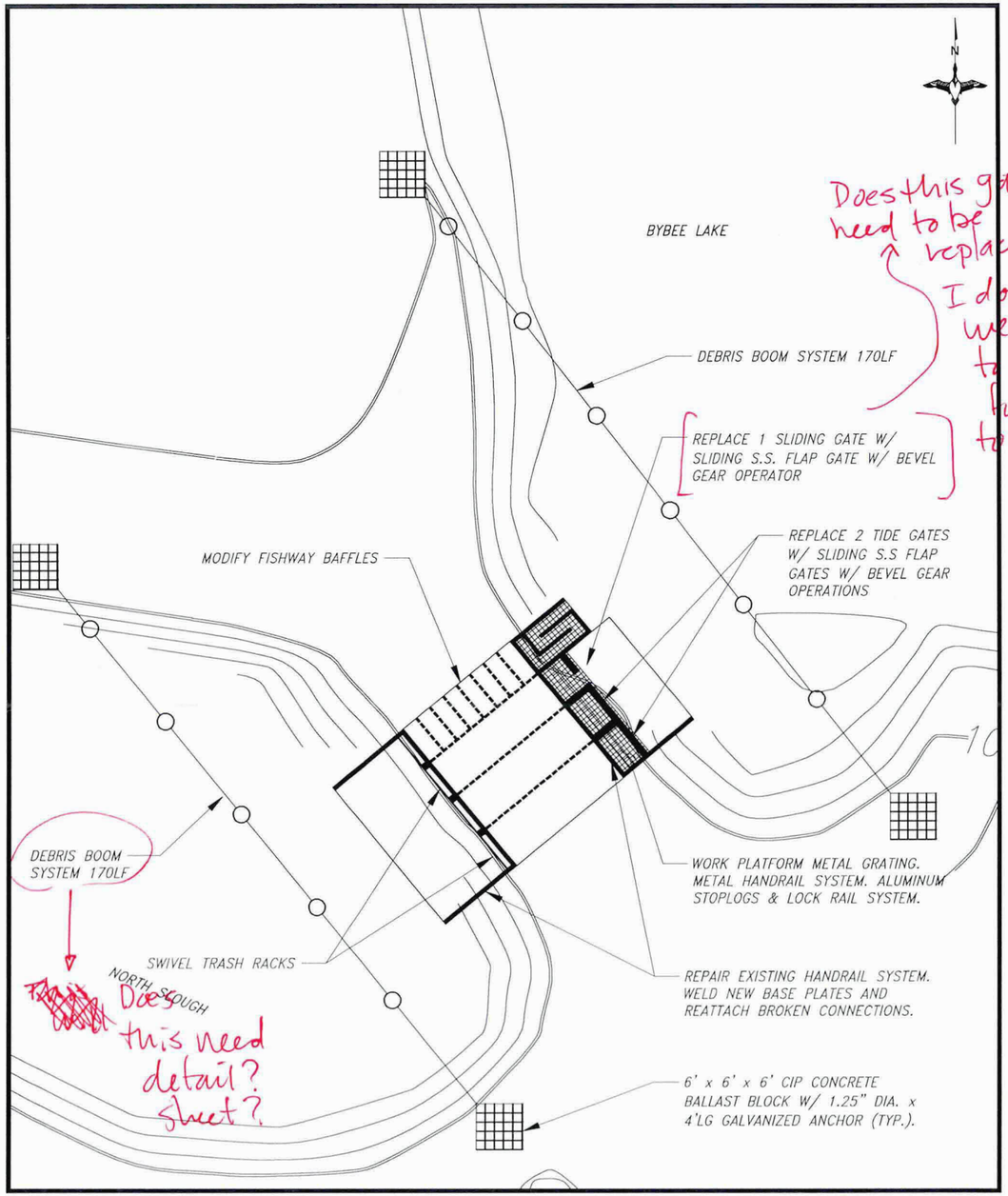
DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. 12 of 18

0 15 30 FEET
SCALE



1
13
EXISTING SITE PLAN

0 15 30 FEET
SCALE



2
13
WCS IMPROVEMENTS

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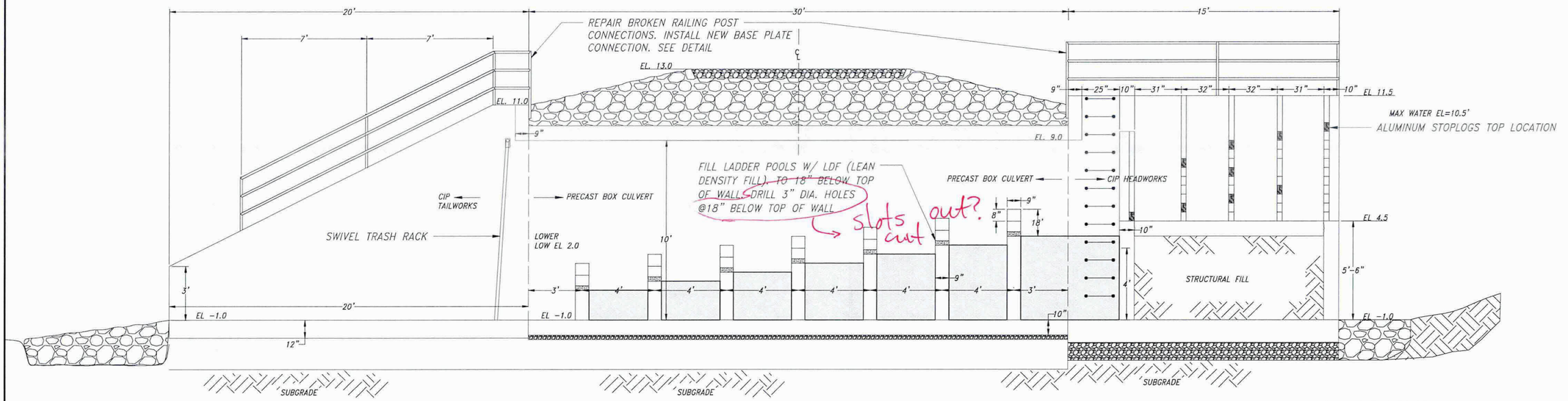
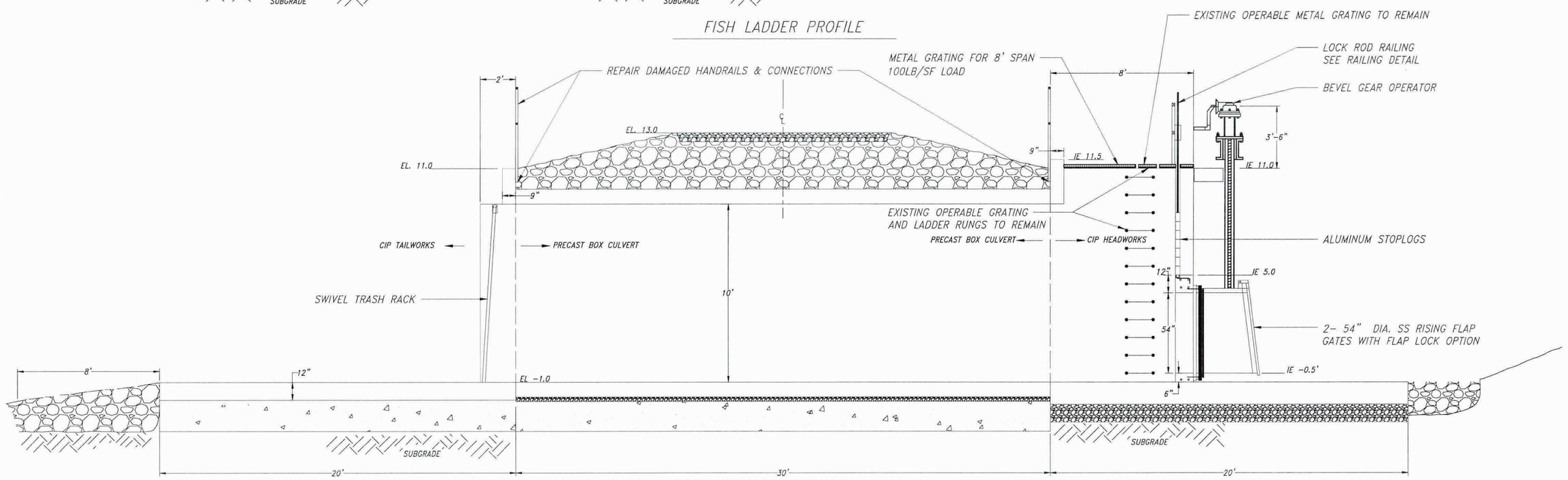
DUCKS UNLIMITED

PROJECT NO: US-OR-32-8 DATE: 6/22/2016
METRO:
SMITH-BYBEE PLAN
WCS EXISTING AND IMPROVEMENTS

DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. **13 of 18**



FISH LADDER PROFILE



OPEN CULVERT PROFILE

1/14 CHANGES TO WATER CONTROL STRUCTURE

90%DESIGN

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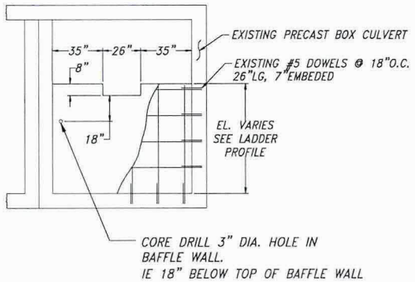
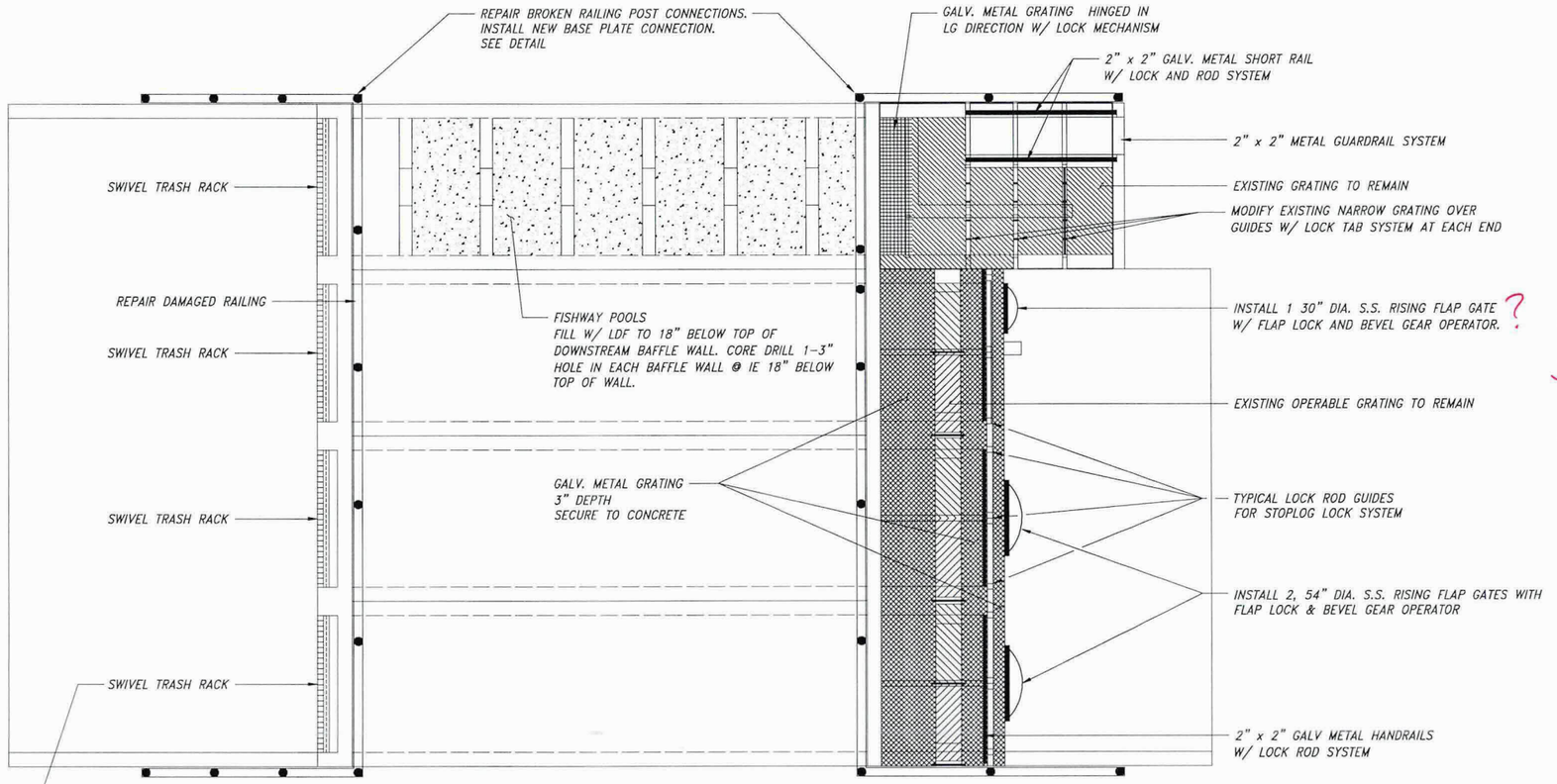
DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/20/2016
METRO: SMITH BYBEE
WCS IMPROVEMENTS

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
SHEET NO.	14 of 18

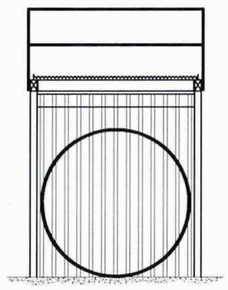


2/15 FISH LADDER BAFFLES IMPROVEMENTS



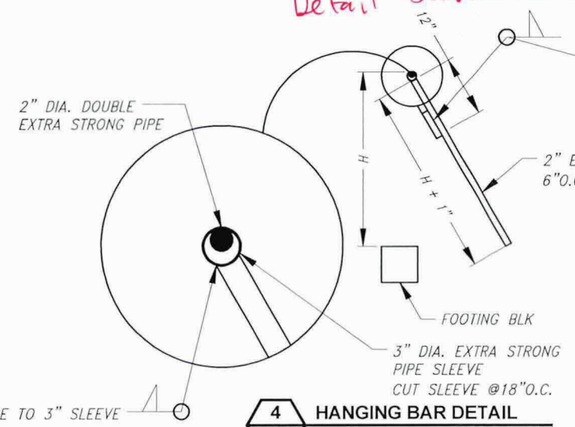
1/15 WCS IMPROVEMENTS
WCS PLAN VIEW

Not sure if this is needed. We're not we going to leave this gate as is. Seed phase 2 scope.

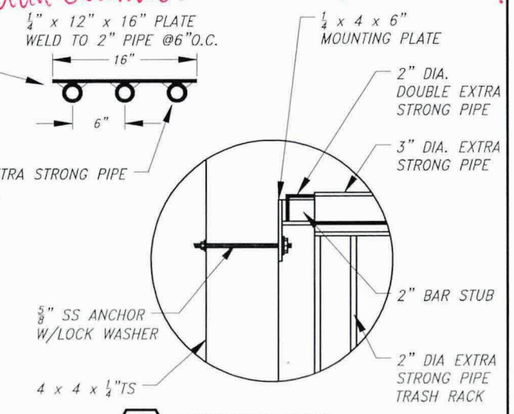


3/15 TRASH RACK

Detail same as Multchannel - is this correct?



4/15 HANGING BAR DETAIL
TRASH RACK



5/15 SUPPORT DETAIL
TRASH RACK

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DUCKS UNLIMITED

PROJECT NO: US-OR-32-8 DATE: 6/21/2016
METRO: SMITH BYBEE
WCS IMPROVEMENTS

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
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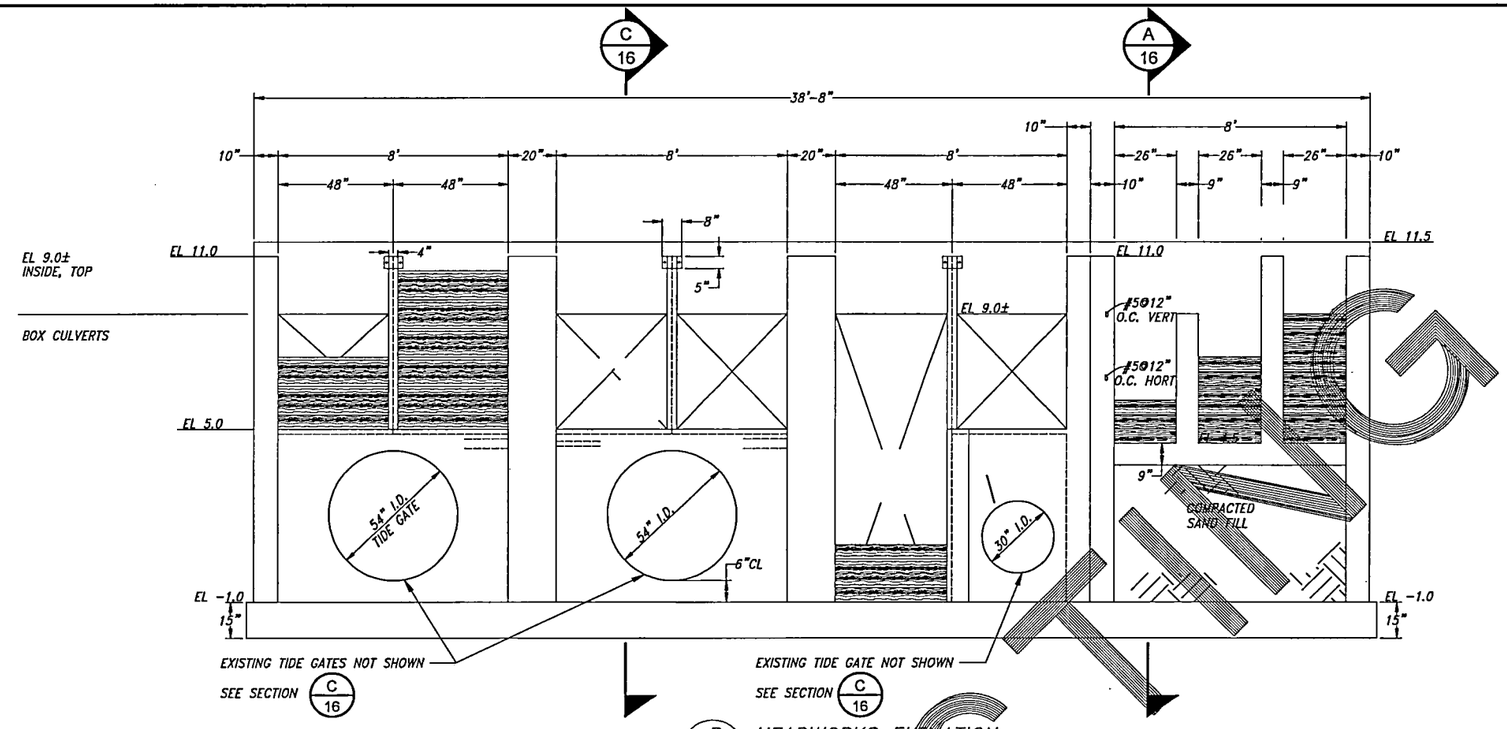
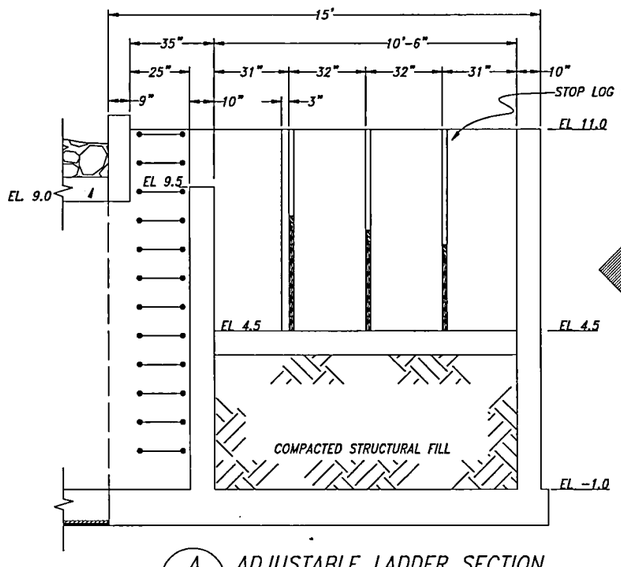


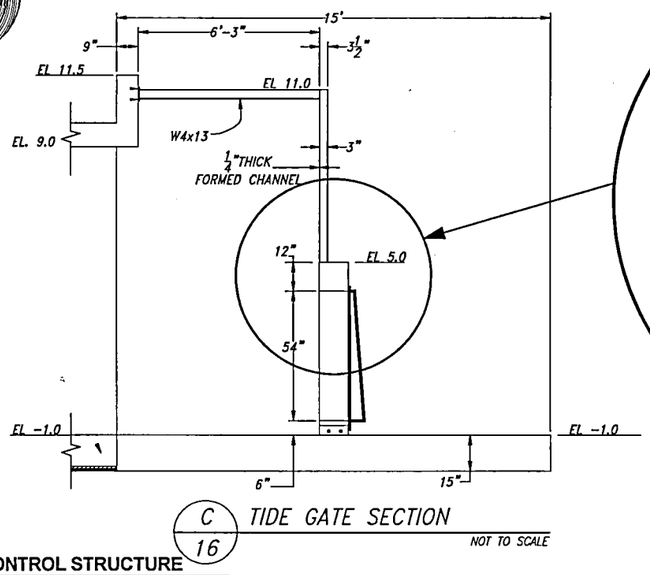
B 16 HEADWORKS ELEVATION

NOT TO SCALE



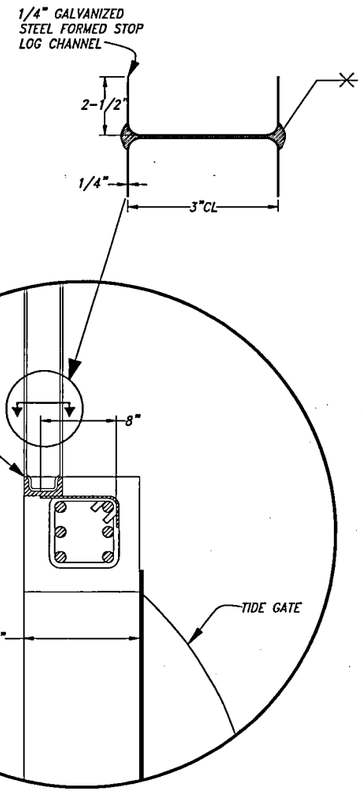
A 16 ADJUSTABLE LADDER SECTION

NOT TO SCALE



C 16 TIDE GATE SECTION

NOT TO SCALE



1 16 EXISTING WATER CONTROL STRUCTURE

EXISTING

90%DESIGN

Unauthorized Changes & Uses
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1			

DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
METRO: SMITH BYBEE
EXISTING WCS DETAILS

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
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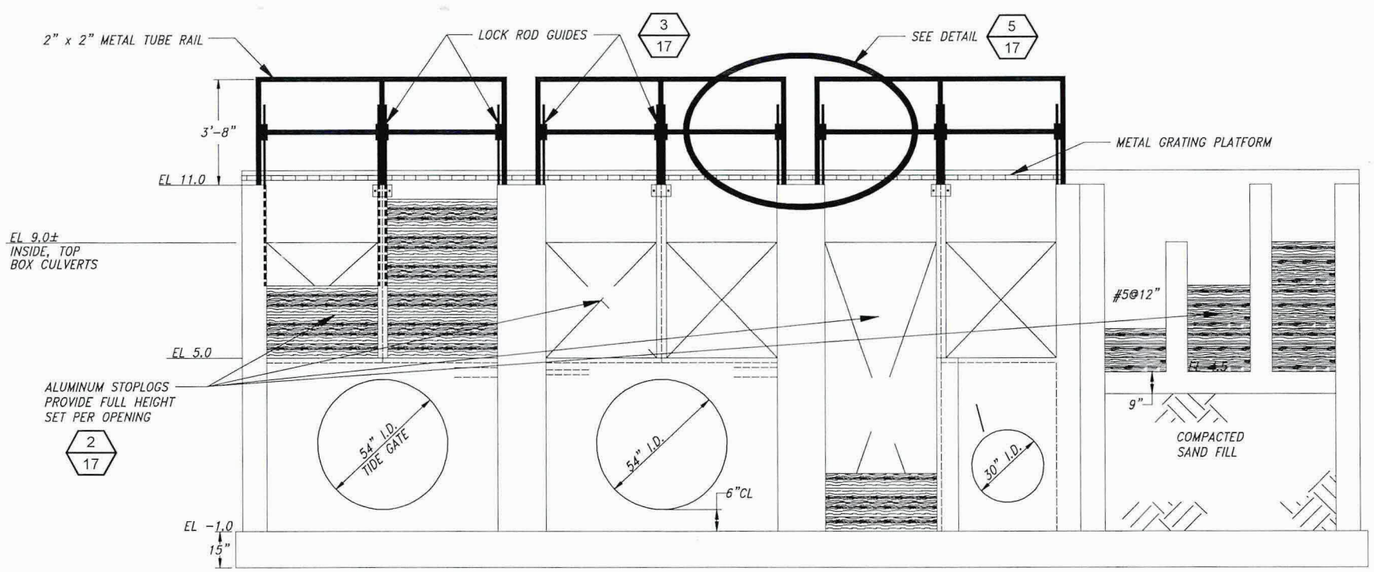
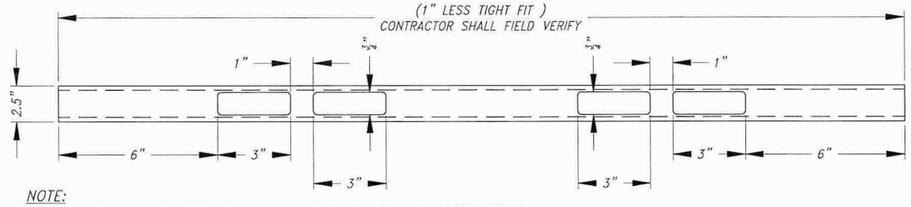


1 / 17 STOPLOGS & LOCK ROD RAIL SYSTEM IMPOVEMENTS ELEVATION



NOTE:
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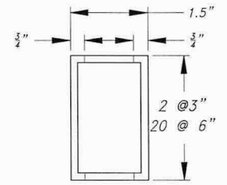
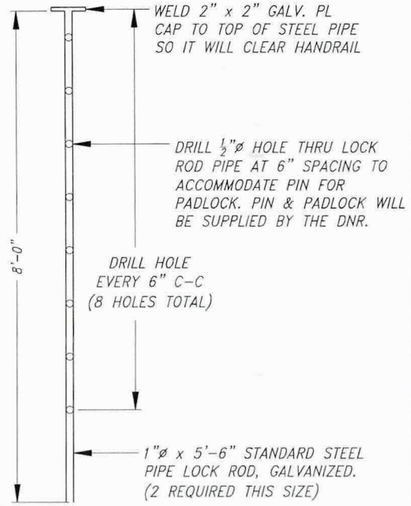
CONTRACTOR IS RESPONSIBLE FOR CUTTING STOPLOGS TO PROPER LENGTH AND FABRICATING THE HOLES IN ALL STOPLOGS AS SHOWN. THE $\frac{3}{4}$" DIMENSION IS CRITICAL AND NEEDS TO BE CENTERED IN THE STOPLOG TO AVOID LEAKAGE. THE FINISHED SURFACE SHALL BE SMOOTH TO PROVIDE A FLAT SURFACE FOR THE STOPLOG.

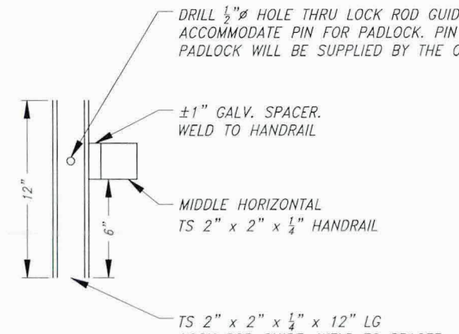
ALUMINUM STOPLOGS:	2	STOPLOGS, 1.5" x 3" x $\frac{1}{4}$"
CONTRACTOR SUPPLIES: LIFTING HOLES	20	STOPLOGS, 1.5" x 6" x $\frac{1}{4}$" WITH



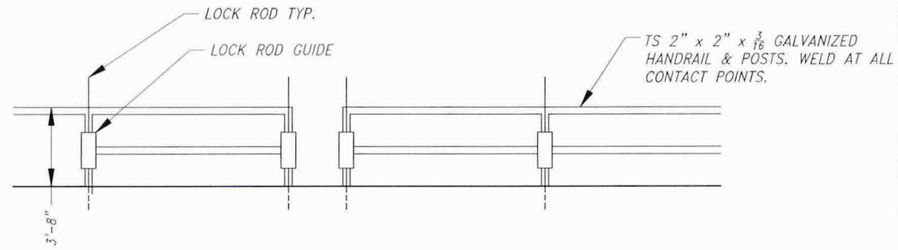
3 / 17 ALUMINUM STOPLOG TYPICAL



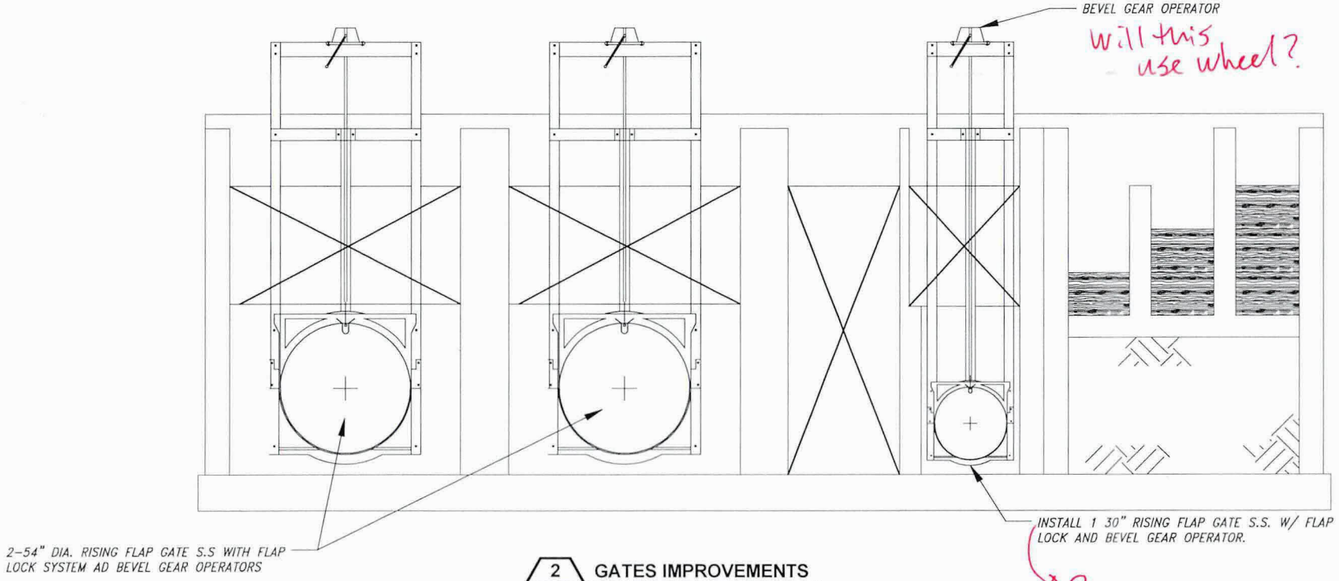
5 / 17 LOCK ROD GUIDE TYPICAL



4 / 17 LOCK ROD GUIDE TYPICAL



6 / 17 LOCK ROD & RAIL SYSTEM



2 / 17 GATES IMPROVEMENTS ELEVATION

90%DESIGN

Unauthorized Changes & Uses
The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes must be in writing and must be approved by the preparer of these plans.

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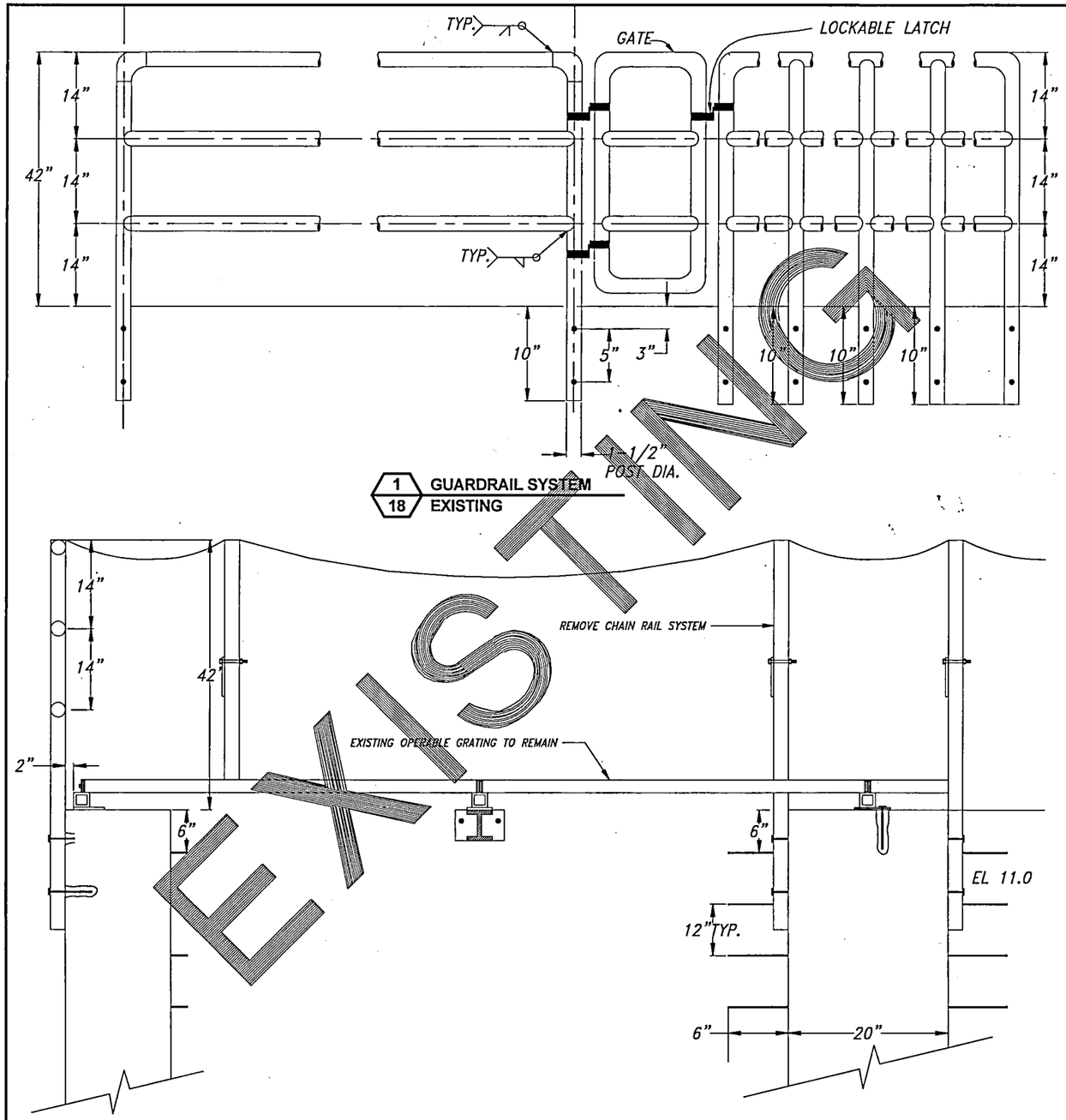
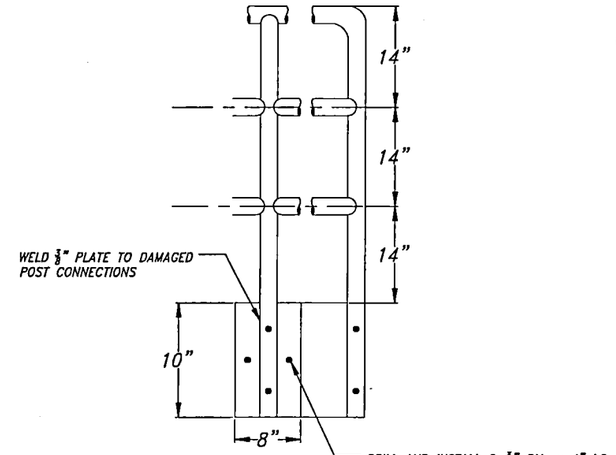
PROJECT NO. US-OR-32-8 DATE: 6/21/2016
METRO: SMITH BYBEE
WCS IMPROVEMENTS

DESIGNED BY: GW
DRAWN BY: DMC
SURVEYED BY:
CHECKED BY:
SHEET NO. **17 of 18**

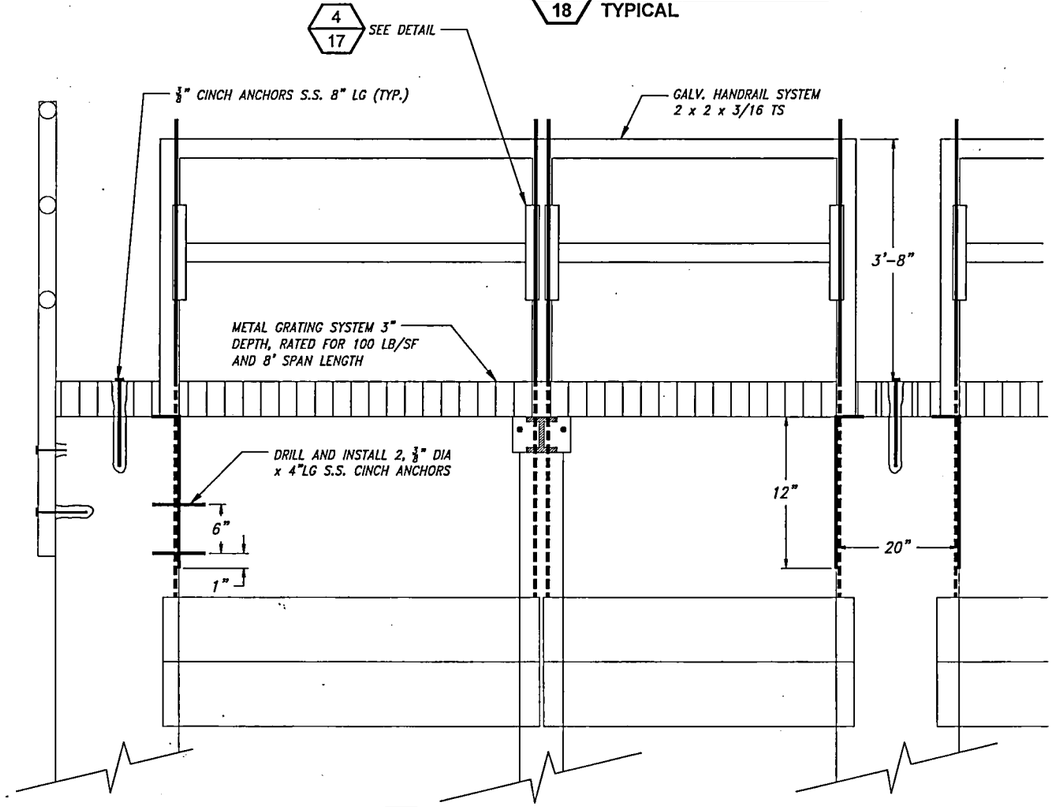


1/18 GUARDRAIL SYSTEM EXISTING

2/18 CHAIN RAIL & GRATING SYSTEM EXISTING



3/18 POST ANCHOR REPAIR TYPICAL



4/18 METAL GRATING RAILING IMPROVEMENTS

90%DESIGN

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DUCKS UNLIMITED

PROJECT NO. US-OR-32-8 DATE: 6/22/2016
SMITH BYBEE
DETAILS
EXISTING & IMPROVEMENTS

DESIGNED BY:	GW
DRAWN BY:	DMC
SURVEYED BY:	
CHECKED BY:	
SHEET NO.	18 of 18