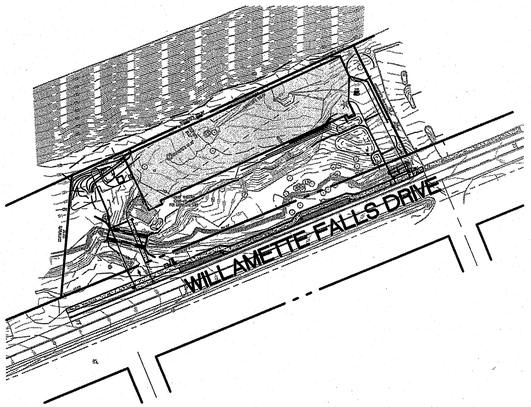
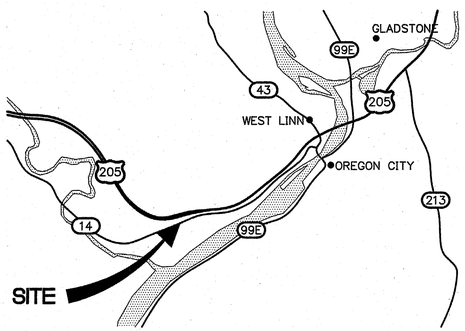
WILLAMETTE FALLS DRIVE

~~ODOT IMPROVEMENTS~~

WEST LINN, OR



SITE MAP
1"=100'



VICINITY MAP
N.T.S.

BENCH MARK

ELEVATIONS AND CONTOURS ARE BASED ON GPS MEASUREMENTS USING THE ORGN NETWORK. THE ELEVATIONS ARE ON THE NAVD 1988 DATUM.

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE NORTH RIGHT-OF-WAY LINE OF WILLAMETTE FALLS DRIVE, HOLDING THE BEARING SHOWN ON CLACKAMAS COUNTY SURVEY NUMBER 26,899.

LIST OF ABBREVIATIONS

AC	ASPHALT CONCRETE	GL	GUTTERLINE
℄	CENTERLINE	MH	MANHOLE
R.O.W.	RIGHT OF WAY	TYP	TYPICAL
CB	CATCH BASIN	IE	INVERT ELEVATION
STD	STANDARD	SPEC	SPECIFICATION
TC	TOP OF CURB	EL	ELEVATION
BC	BOTTOM OF CURB	PL	PROPERTY LINE
EX	EXISTING	DET	DETAIL

THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS SHOWN FOR REFERENCE ONLY AND IS BASED ON A SURVEY BY: NORTHWEST SURVEYING DATE: 11/18/2015

OWNER

NORTHWEST SELF-STORAGE

14855 SE 82ND DRIVE
CLACKAMAS, OR 97015
PHONE: (503) 804-5545
CONTACT: TOM JONES
EMAIL: CAPITALMAN@ONLINENW.COM

CIVIL ENGINEER

MACKENZIE
RIVEREAST CENTER

1515 SE WATER AVENUE, SUITE 100
PORTLAND, OREGON 97214
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FAX: (503) 228-1285
CONTACT: RALPH HENDERSON (ENGINEERING)
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LANDSCAPE ARCHITECT

MARIANNE ZARKIN

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PORTLAND, OREGON 97213
PHONE: (503) 802-0031
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SHEET INDEX

C0.0	COVER SHEET	R0	COVER SHEET
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C3.0	GRADING PLAN	R3	PUBLIC IMPROVEMENTS RETAINING WALL PLAN AND PROFILE
C3.1	GRADING ENLARGEMENTS	R4	GRADING ENLARGEMENTS
C3.2	GRADING ODOT PERMIT/GRADING DETAIL	R5	CIVIL DETAILS
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~~C5.1~~	~~EROSION CONTROL DETAILS~~		
C8.0	CIVIL DETAILS		
C8.1	CIVIL DETAILS		
C8.2	CIVIL DETAILS		
C8.3	CIVIL DETAILS		
C8.4	CIVIL DETAILS		

PUBLIC IMPROVEMENT PLANS FOR INFORMATION ONLY

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE OREGON DEPARTMENT OF TRANSPORTATION (ODOT) AND THE CURRENT CITY OF WEST LINN PUBLIC WORKS STANDARDS.
2. NOT USED
3. CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
4. WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
5. REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.

APPROVED PLAN
City of West Linn
Building Department
DATE: 3/6/17
BY:

GRADING NOTES

1. ROUGH GRADING: BRING ALL FINISH GRADES TO APPROXIMATE LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. ROUGH GRADE TO ALLOW FOR DEPTH OF CONCRETE SLABS, WALKS, AND THEIR BASE COURSES. GRADE FOR PAVED DRIVES AND PAVED PARKING AREAS AS INDICATED AND SPECIFIED HEREIN, AND PROVIDE FOR SURFACE DRAINAGE AS SHOWN, ALLOWING FOR THICKNESS OF SURFACING MATERIAL.
   FINISH GRADING AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER CRAFTS HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES.
   GRADING TOLERANCES:
   ROUGH GRADE AT PAVED OR LANDSCAPED AREAS: ±0.1 FT. FINISH GRADE PRIOR TO PLACING FINAL SURFACING: ±0.03 FT.
2. EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) MUST COMPLY WITH O.R.S. 757.541 THROUGH 757.571; EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY-TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER – PORTLAND METRO AREA 246-6699, OREGON 696-4848, ALL OTHER AREAS 1-800-332-2344).
3. EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE CITY OF WEST LINN AND ODOT REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
4. EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE SO ROUTED THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
5. SITE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING.
6. THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY BY NORTHWEST SURVEYING, AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH HIS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION.
7. CONTRACTOR TO COORDINATE GRADES AT ENTRANCE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
8. 2% MAXIMUM SLOPE AT ALL ADA-COMPLIANT PARKING SPACES AND LOADING ZONES
9. 5% MAX SLOPE (EXCLUDING RAMPS) AT PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES.
10. WHERE SLOPES ARE STEEPER THAN 3:1, CONTRACTOR SHALL INSTALL JUTE MATTING. SLOPE SHALL BE PREPARED TO ENSURE COMPLETE AND DIRECT CONTACT OF MATTING WITH SOIL. FOLLOW MANUFACTURER'S RECOMMENDATIONS.
11. REFER TO PUBLIC IMPROVEMENT PLANS FOR GRADING IN RIGHT OF WAY

UTILITY NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF WEST LINN, ODOT, AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE INTERNATIONAL BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
3. PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.12. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
4. ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013 ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED.
5. SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
6. ALL DOWNSPOUT LEADERS TO BE 6" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
7. VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLING PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
8. PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH ¾" DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
9. CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SPECIFICATIONS AND LANDSCAPE PLANS.
10. SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5' OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING.
11. CONTRACTOR TO MAINTAIN MINIMUM 3 FT OF COVER OVER ALL WATER LINE.

THIS PLAN REVIEW APPROVAL DOES NOT PREVENT THE FIELD INSPECTOR FROM REQUIRING FURTHER CODE CORRECTIONS.

BUILDING PERMIT SET: APRIL 3, 2017

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Planning ▪ Engineering

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Client
NORTHWEST SELF STORAGE
14855 SE 82ND DR
CLACKAMAS, OR 97015

Project
NORTHWEST SELF STORAGE
2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER
RALPH A. HENDERSON
56660 PE
OREGON
JULY 15, 1986
RALPH A. R. HENDERSON
EXPIRATION DATE 6/30/17

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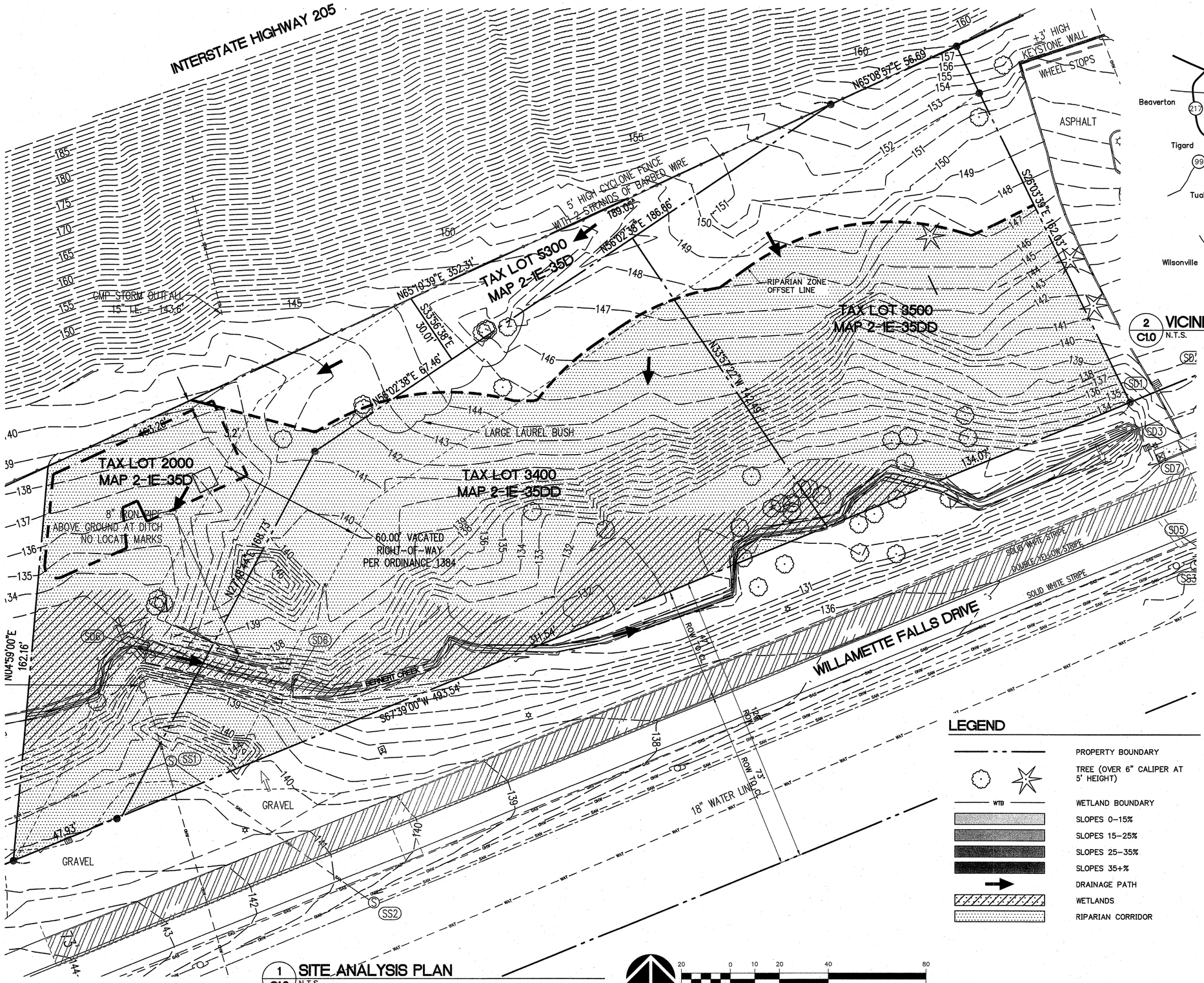
SHEET TITLE:
COVER SHEET

DRAWN BY: BLF
CHECKED BY: MWB
SHEET:
C0.0

JOB NO. 2150120.00



1 C1.0 **SITE ANALYSIS PLAN**
N.T.S.

1:1

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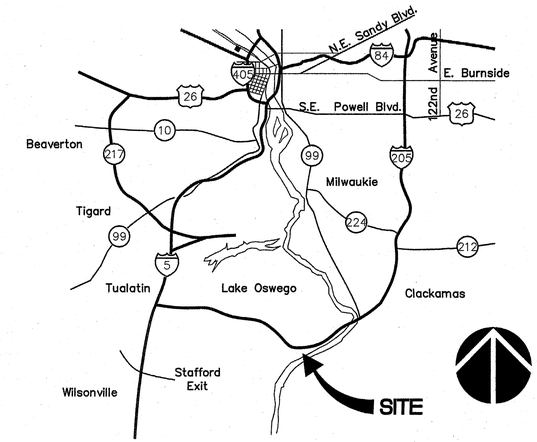
LEGEND

- PROPERTY BOUNDARY
- TREE (OVER 6" CALIPER AT 5' HEIGHT)
- WTB — WETLAND BOUNDARY
- SLOPES 0–15%
- SLOPES 15–25%
- SLOPES 25–35%
- SLOPES 35+%
- DRAINAGE PATH
- WETLANDS
- RIPARIAN CORRIDOR

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.



2 C1.0 **VICINITY MAP**
N.T.S.

1:1

EXISTING SITE ANALYSIS:

EXISTING SITE AREA			68,663 SF	(1.58 AC)
SLOPES:	0–15 PERCENT	TYPE I*	45,648 SF	(66.5%)
	15–25 PERCENT	TYPE II*	8,435 SF	(12.3%)
	25–35 PERCENT	TYPE II*	4,947 SF	(7.2%)
	35+ PERCENT	TYPE IV*	9,633 SF	(14.0%)

*CLASSIFICATION PER CDC 55.110.B.3

TYPE I & II LANDS PER CDC 02.030: 22,142 SF (32.2%)**
NON–TYPE I & II LANDS PER CDC 02.030: 46,521 SF (67.8%)

**THIS INCLUDES BERNERT CREEK AND ASSOCIATED WETLANDS PLUS ALL SLOPES 25% OR GREATER

WEST LINN NATURAL HAZARDS MITIGATION PLAN INFO:

- THE POTENTIAL LANDSLIDES MAP IDENTIFIES A LANDSLIDE OFF–SITE TO THE NORTHEAST. NO LANDSLIDES ARE IDENTIFIED ONSITE.
- THE LANDSLIDE VULNERABILITY ANALYSIS MAP IDENTIFIES SLOPES OVER 25% AS LANDSLIDE HAZARD AREAS. SLOPES ARE ILLUSTRATED IN THE LEGEND BELOW.
- THE EARTHQUAKE VULNERABILITY ANALYSIS MAP IDENTIFIES THE HIGH EARTHQUAKE HAZARD AREA AS INCLUDING THE ENTIRE SITE.
- THE REPORT OF GEOTECHNICAL ENGINEERING (GEOTECH SOLUTIONS INC, MARCH 24, 2016) INDICATED THAT SEISMIC HAZARDS ARE LOW AT THE SITE AND THAT SLOPES THAT ARE INCLINED, RETAINED, AND DRAINED AS DESCRIBED IN THE REPORT HAVE SUITABLE STABILITY.

BUILDING PERMIT SET: APRIL 3, 2017

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REGISTERED PROFESSIONAL ENGINEER
58660 PE
OREGON
JULY 11, 2008
Matthew R. Hendricks
Expiration Date 6/30/17

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SITE ANALYSIS PLAN

DRAWN BY: BLF
CHECKED BY: MWB
SHEET:
C1.0

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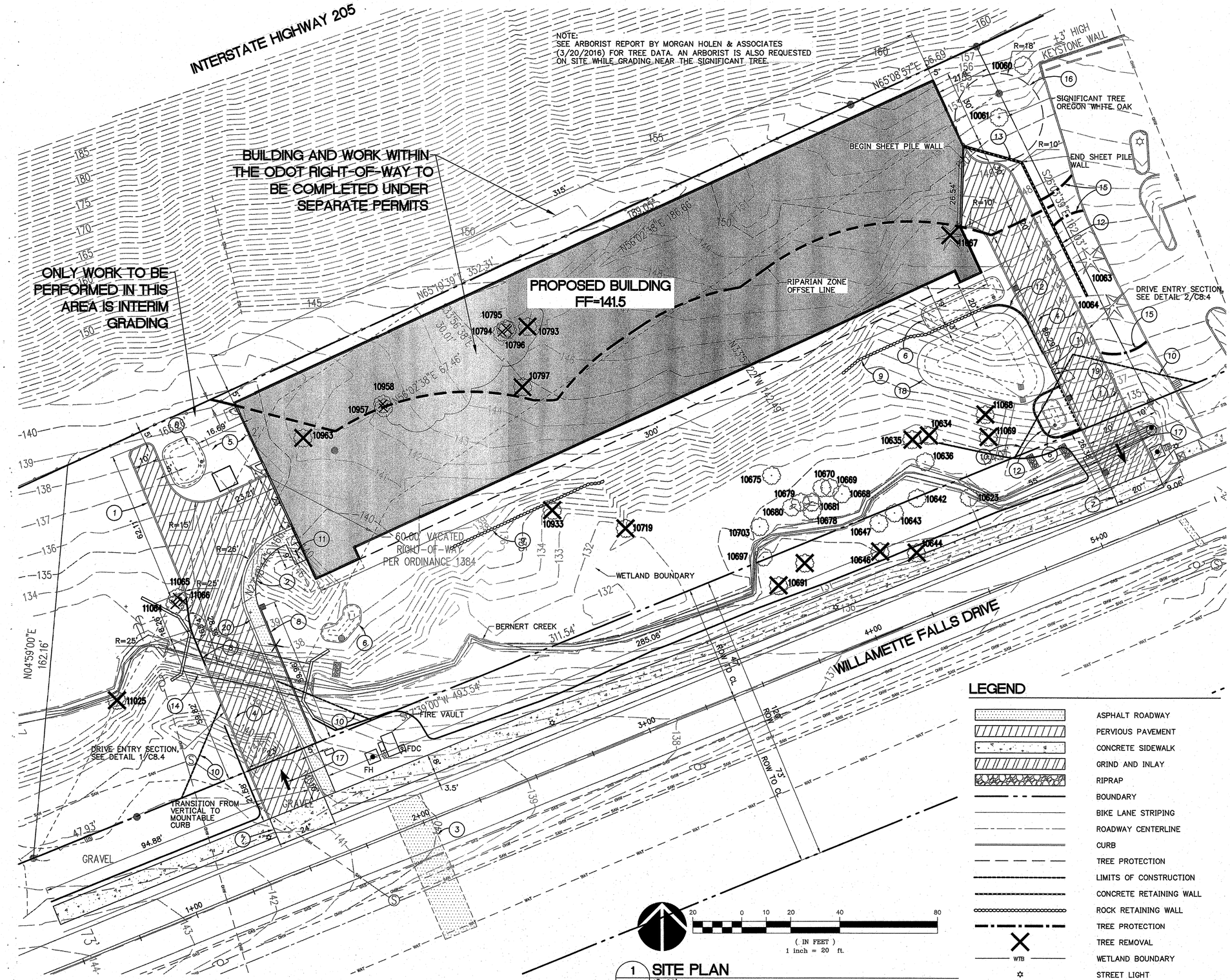

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1 C2.0 **SITE PLAN** 1"=20'

1:1

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE CITY OF WEST LINN PUBLIC WORKS STANDARDS AND THE CURRENT AMERICAN PUBLIC WORKS ASSOCIATION STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
3. EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED TO MEET CITY OF WEST LINN REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
4. EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE ROUTED SO THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
5. CONTRACTOR SHALL ADJUST ALL STRUCTURES IMPACTED BY CONSTRUCTION IMPROVEMENTS TO NEW FINISH GRADES.
6. EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) MUST COMPLY WITH O.R.S. 757.541 THROUGH 757.571; EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS SEVENTY–TWO (72) HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. (ONE CALL LOCATE UTILITY NOTIFICATION CENTER – PORTLAND METRO AREA 246–6699, OREGON 696–4848, ALL OTHER AREAS 1–800–332–2344).
7. WHERE CONNECTING TO AN EXISTING PIPE, AND PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL EXPOSE THE END OF THE EXISTING PIPE VERIFY THE LOCATION, SIZE, AND ELEVATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
8. REQUEST BY THE CONTRACTOR FOR CHANGES TO THE PLANS MUST BE APPROVED BY THE ENGINEER.
9. MITIGATION SHALL CONSIST OF REMOVAL OF REED CANARY GRASS, HIMALAYAN BLACKBERRY, AND OTHER NON–NATIVE SPECIES THROUGHOUT THE REMAINING WRA. AN APPROVED HERBICIDE SHALL BE USED PRIOR TO GRUBBING OUT ROOT MATERIAL. FOLLOW UP SHOP APPLICATION WILL BE PROVIDED AS NECESSARY.
10. ALL SITE CURBS, MOUNTABLE AND VERTICAL, TO BE PAINTED RED WITH "NO PARKING – FIRE LANE" AT 30' O.C.

KEYNOTES:

1. CONCRETE VERTICAL CURB, SEE DETAIL 1/C8.0
2. PERVIOUS CONCRETE SIDEWALK, SEE DETAIL 2/C8.0
3. ASPHALT PAVEMENT, SEE PUBLIC IMPROVEMENT PLANS
4. PERVIOUS PAVEMENT, SEE DETAIL 5/C8.0
5. LANDSCAPE AREA, SEE LANDSCAPE PLANS
6. WATER QUALITY POND, SEE UTILITY PLAN
7. CONSTRUCT CONCRETE DRIVEWAY, SEE PUBLIC IMPR. PLANS
8. CONSTRUCT 42" HIGH GUARDRAIL. SEE ARCH. PLANS.
9. CONSTRUCT ROCK RETAINING WALL, SEE DETAIL 9/C8.0
10. VISION CLEARANCE TRIANGLE
11. INSTALL BIKE RACK, SEE DETAIL 6/8.
12. CONSTRUCT CONCRETE RETAINING WALL, SEE DETAIL 4/C8.0
13. SHEET PILE WALL, DESIGN–BUILD BY CONTRACTOR–DEFERRED SUBMITTAL
14. OPEN PRECAST ARCH STRUCTURE, SEE SHEET C4.0
15. TREE PROTECTION
16. PROTECTED TREE CONSTRUCTION LIMITS
17. INSTALL DIRECTIONAL ARROW, SEE DETAIL 3/C8.0
18. DETENTION POND, SEE UTILITY PLAN
19. SURFACE WATER FACILITY GATE, 15' WIDE, SEE DETAIL 4/C8.2
20. MOUNTABLE CURB. SEE DETAIL 8/C8.1

SITE COVERAGE SUMMARY:

PREVIOUSLY DISTURBED AREA	13,000 SF
TEMPORARILY DISTURBED AREA	29,412 SF
PERMANENTLY DISTURBED AREA	30,726 SF
LANDSCAPED AREA	29,412 SF
TREE CANOPY AREA	10,954 SF
MAXIMUM DISTURBED AREA ALLOWED IN WRA	15,890 SF
MAXIMUM DISTURBED AREA IN WRA	15,214 SF

REVISED JUNE 21, 2017
BUILDING PERMIT SET: APRIL 3, 2017

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Project
NORTHSET SELF STORAGE
2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER #50860 OREGON MAY. 11, 2005 RALPH J.R. HENDERSON
EXPIRES: 6/30/19

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1		IN PROGRESS

SHEET TITLE:
SITE PLAN

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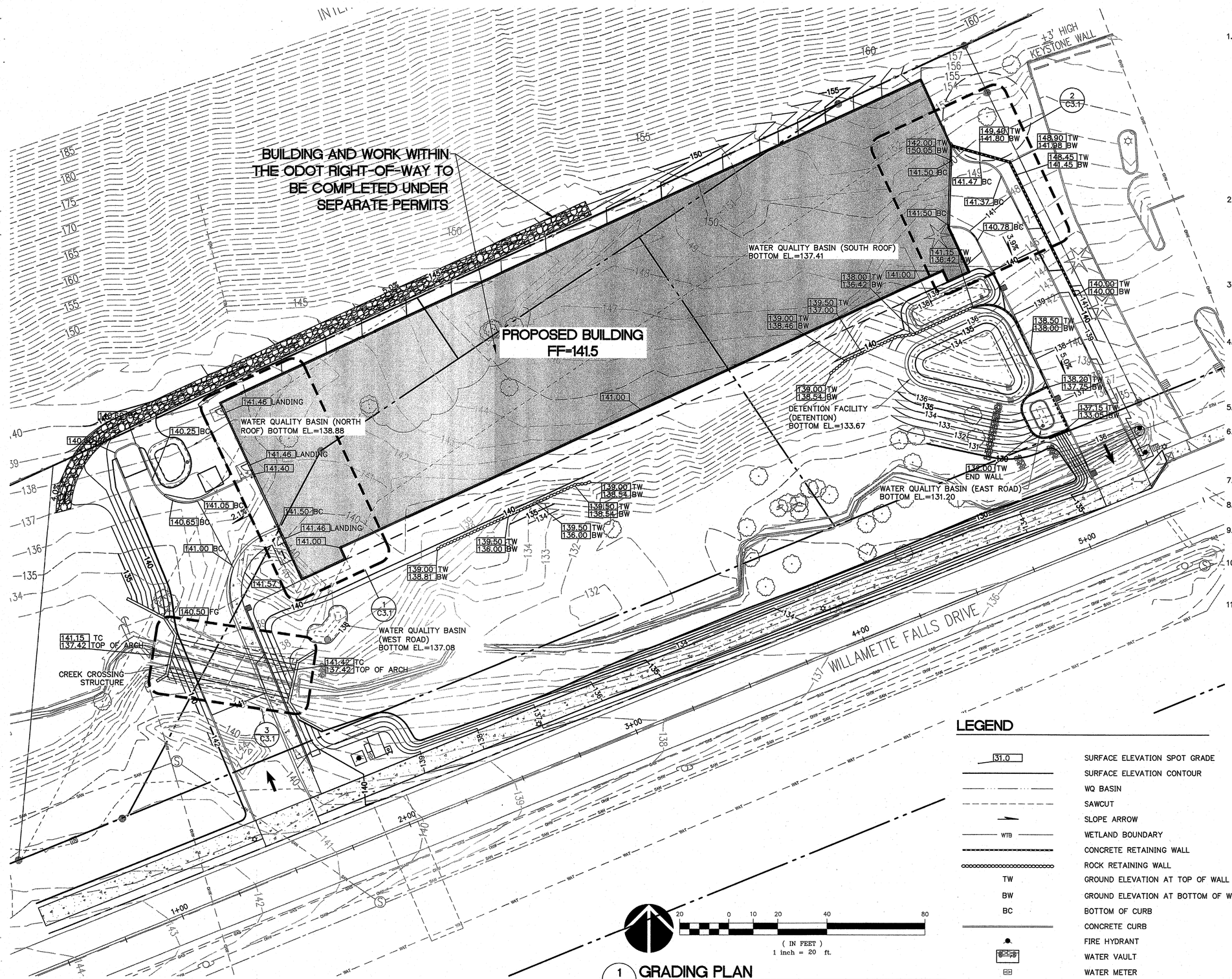
CHECKED BY: MWB
SHEET:
C2.0
JOB NO. 2150120.00



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1 C3.0 GRADING PLAN 1"=20'

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1:1

GRADING NOTES

1. ROUGH GRADING: BRING ALL FINISH GRADES TO APPROXIMATE LEVELS INDICATED. WHERE GRADES ARE NOT OTHERWISE INDICATED, FINISH GRADES ARE TO BE THE SAME AS ADJACENT SIDEWALKS, CURBS, OR THE OBVIOUS GRADE OF ADJACENT STRUCTURE. GRADE TO UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE GRADES ARE GIVEN. ROUND OFF SURFACES, AVOID ABRUPT CHANGES IN LEVELS. ROUGH GRADE TO ALLOW FOR DEPTH OF CONCRETE SLABS, WALKS, AND THEIR BASE COURSES. GRADE FOR PAVED DRIVES AND PAVED PARKING AREAS AS INDICATED AND SPECIFIED HEREIN, AND PROVIDE FOR SURFACE DRAINAGE AS SHOWN, ALLOWING FOR THICKNESS OF SURFACING MATERIAL.
   FINISH GRADING: AT COMPLETION OF JOB AND AFTER BACKFILLING BY OTHER CRAFTS HAS BEEN COMPLETED, REFILL AND COMPACT AREAS WHICH HAVE SETTLED OR ERODED TO BRING TO FINAL GRADES.
   GRADING TOLERANCES:
   ROUGH GRADE AT PAVED OR LANDSCAPED AREAS: ±0.1 FT.
   FINISH GRADE PRIOR TO PLACING FINAL SURFACING: ±0.03 FT.
2. EXCAVATION: EXCAVATE FOR SLABS, PAVING, AND OTHER IMPROVEMENTS TO SIZES AND LEVELS SHOWN OR REQUIRED. ALLOW FOR FORM CLEARANCE AND FOR PROPER COMPACTION OF REQUIRED BACKFILLING MATERIAL. EXCAVATOR(S) MUST COMPLY WITH O.R.S. 757.541 THROUGH 757.571; EXCAVATOR(S) SHALL NOTIFY ALL UTILITY COMPANIES FOR LINE LOCATIONS 72 HOURS (MINIMUM) PRIOR TO START OF WORK. DAMAGE TO UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
3. EFFECTIVE EROSION PREVENTION AND SEDIMENT CONTROL IS REQUIRED. EROSION CONTROL DEVICES MUST BE INSTALLED AND MAINTAINED MEETING THE CITY OF WEST LINN REQUIREMENTS. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE EROSION CONTROL.
4. EFFECTIVE DRAINAGE CONTROL IS REQUIRED. DRAINAGE SHALL BE CONTROLLED WITHIN THE WORK SITE AND SHALL BE SO ROUTED THAT ADJACENT PRIVATE PROPERTY, PUBLIC PROPERTY, AND THE RECEIVING SYSTEM ARE NOT ADVERSELY IMPACTED. THE GOVERNING JURISDICTION MAY, AT ANY TIME, ORDER CORRECTIVE ACTION AND STOPPAGE OF WORK TO ACCOMPLISH EFFECTIVE DRAINAGE CONTROL.
5. SITE TOPSOIL SHALL BE STOCKPILED DURING CONSTRUCTION AND USED FOR LANDSCAPING.
6. THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS BASED ON A SURVEY BY NORTHWEST SURVEYING, AND IS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS WITH HIS OWN RESOURCES PRIOR TO START OF ANY CONSTRUCTION.
7. CONTRACTOR TO COORDINATE GRADES AT ENTRANCE WITH ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
8. 2% MAXIMUM SLOPE AT ALL ADA-COMPLIANT PARKING SPACES AND LOADING ZONES
9. 5% MAX SLOPE (EXCLUDING RAMPS) AT PEDESTRIAN SIDEWALK CONNECTIONS BETWEEN PUBLIC R.O.W. AND BUILDING ENTRANCES.
10. WHERE SLOPES ARE STEEPER THAN 3:1, CONTRACTOR SHALL INSTALL JUTE MATTING. SLOPE SHALL BE PREPARED TO ENSURE COMPLETE AND DIRECT CONTACT OF MATTING WITH SOIL. FOLLOW MANUFACTURER'S RECOMMENDATIONS.
11. REFER TO PUBLIC IMPROVEMENT PLANS FOR GRADING IN RIGHT OF WAY

LEGEND

31.0	SURFACE ELEVATION SPOT GRADE
	SURFACE ELEVATION CONTOUR
	WQ BASIN
	SAWCUT
	SLOPE ARROW
WTB	WETLAND BOUNDARY
	CONCRETE RETAINING WALL
	ROCK RETAINING WALL
TW	GROUND ELEVATION AT TOP OF WALL
BW	GROUND ELEVATION AT BOTTOM OF WALL
BC	BOTTOM OF CURB
	CONCRETE CURB
	FIRE HYDRANT
	WATER VAULT
	WATER METER

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CLACKAMAS, OR 97015

Project
NORTHSET SELF STORAGE
2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER #56600 OREGON MAY. 11, 2000 RALPH J.R. HENDERSON
EXPIRES: 6/30/19

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REVISIONS:

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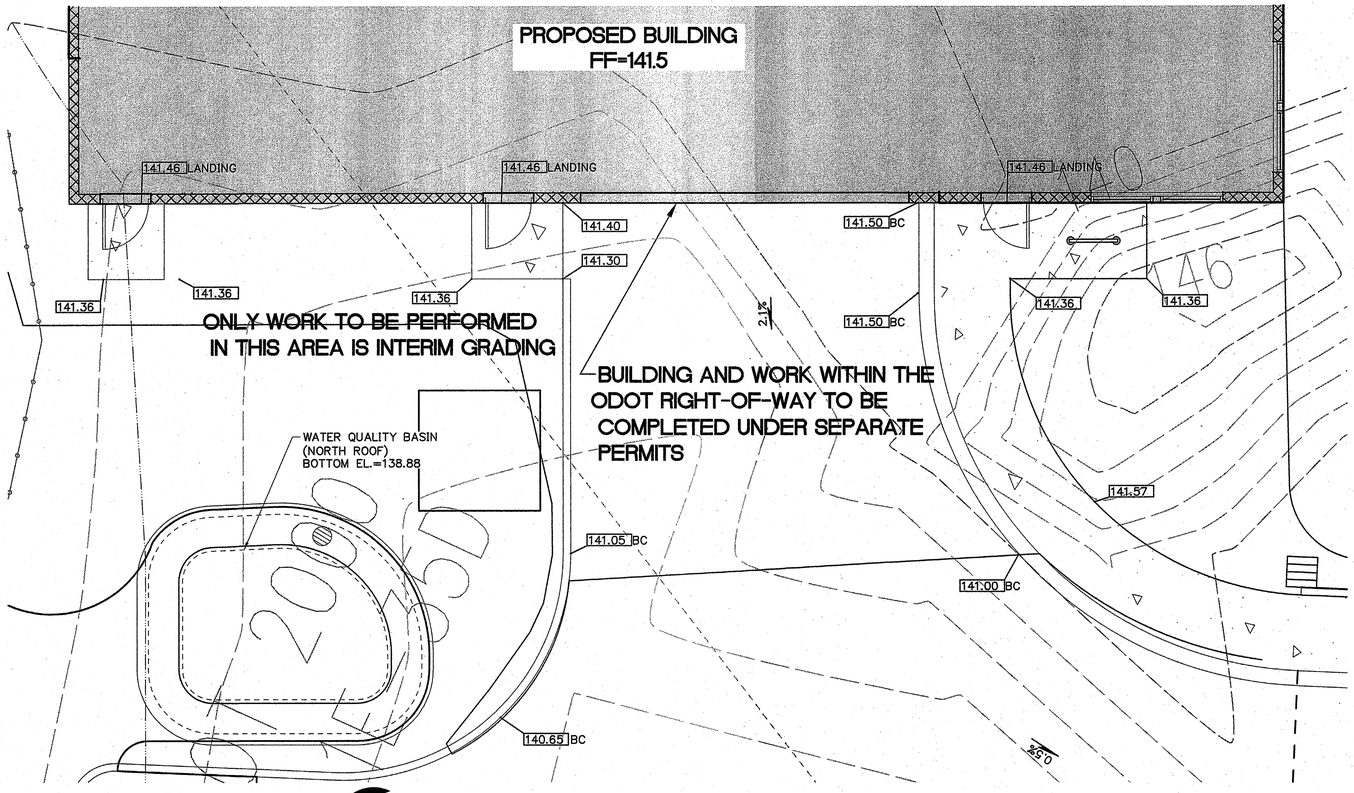
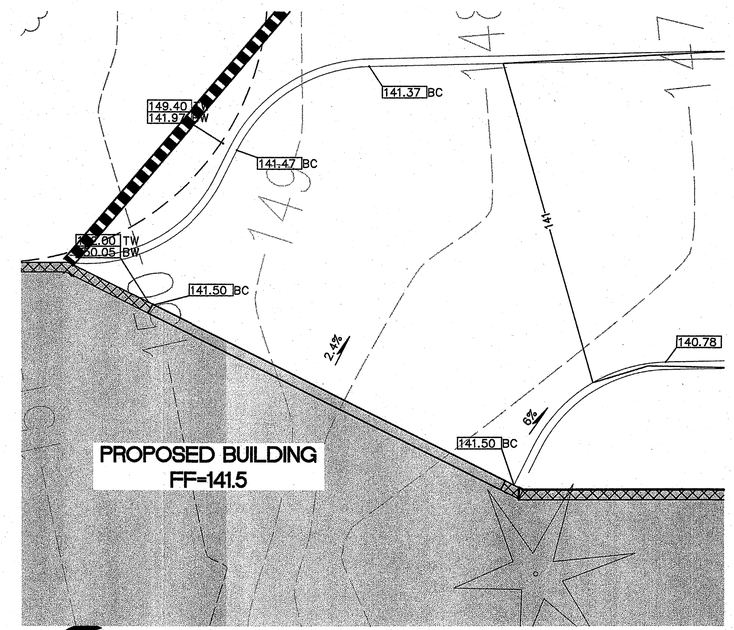
SHEET TITLE:
GRADING PLAN

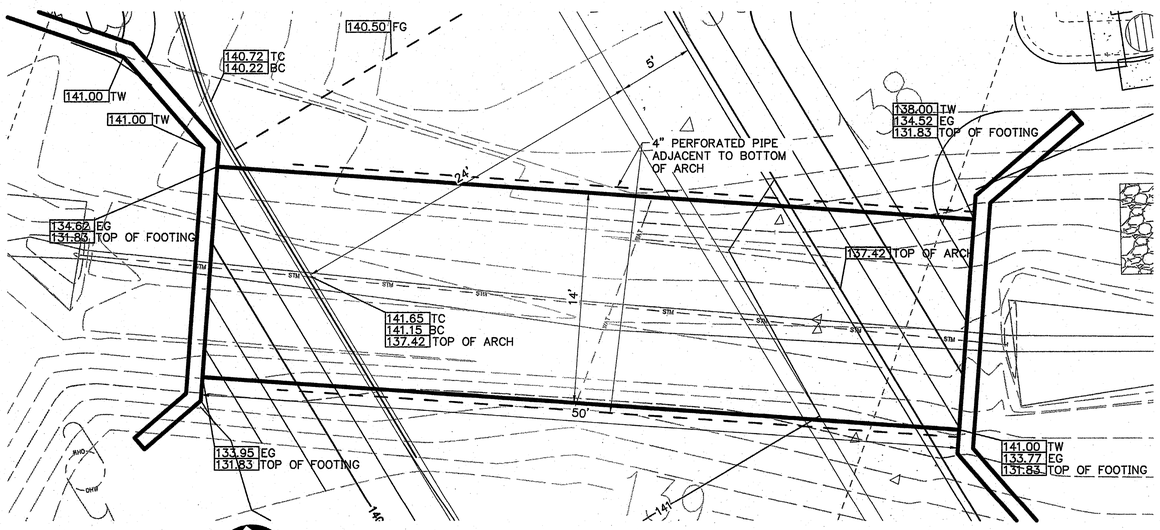
DRAWN BY: BLF
CHECKED BY: MWB
SHEET:
C3.0
JOB NO. 2150120.00



1 C3.1 WEST ENTRANCE
1"=5'
1:1



2 C3.1 EAST ENTRANCE
1"=5'
1:1



3 C3.1 ARCH CROSSING
1"=5'
1:1

THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS SHOWN FOR REFERENCE ONLY AND IS BASED ON A SURVEY BY: NORTHWEST SURVEYING DATE: 11/18/2015

LEGEND

31.0	SURFACE ELEVATION SPOT GRADE
	SURFACE ELEVATION CONTOUR
	WQ BASIN
	SLOPE ARROW
WTB	WETLAND BOUNDARY
	CONCRETE RETAINING WALL
	ROCK RETAINING WALL
TW	GROUND ELEVATION AT TOP OF WALL
BW	GROUND ELEVATION AT BOTTOM OF WALL
BC	BOTTOM OF CURB
	CONCRETE CURB

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NORTHSET
SELF STORAGE
2400 AND 2450
WILLAMETTE FALLS
DRIVE

REGISTERED PROFESSIONAL ENGINEER #56600 OREGON JULY 11, 2003 RALPH J.R. HENDERSON
EXPIRES: 6/30/19

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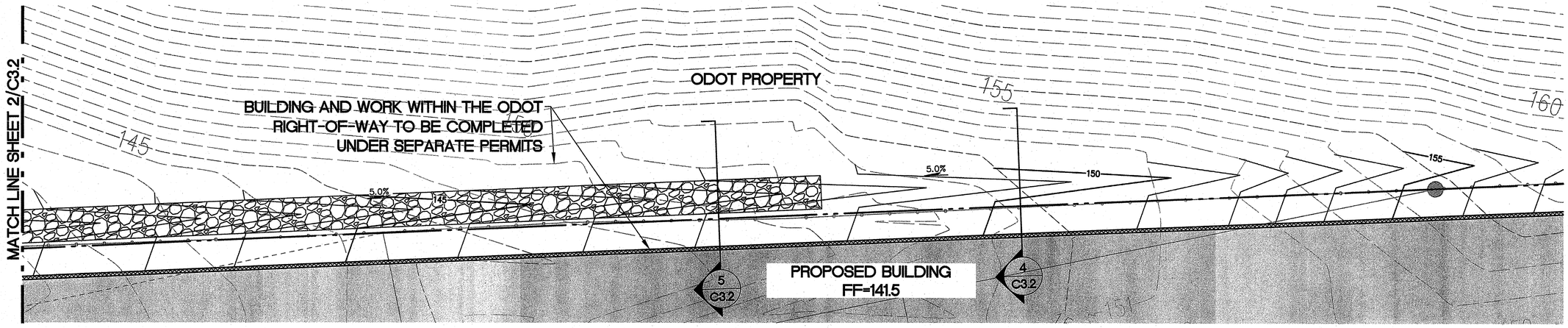
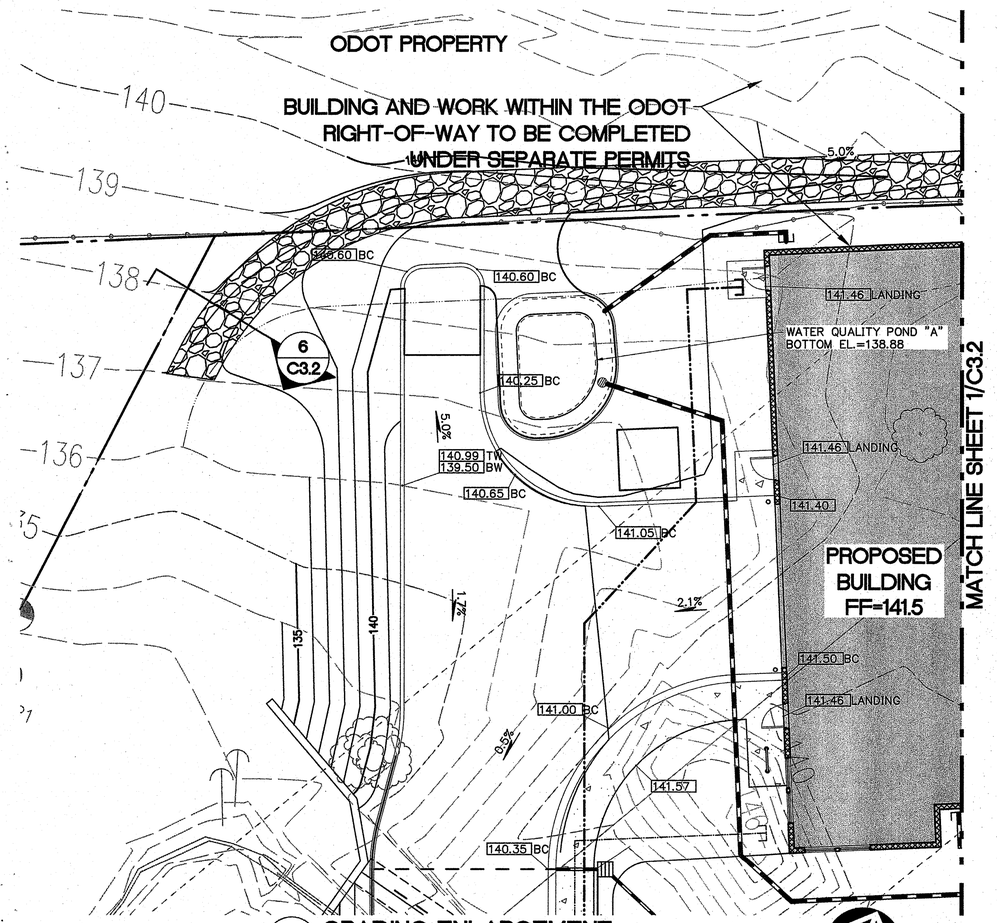
SHEET TITLE:
GRADING
ENLARGEMENTS

DRAWN BY: BLF
CHECKED BY: MWB
SHEET:
C3.1
JOB NO. 2150120.00



1 C3.2 GRADING ENLARGEMENT
1"=10'



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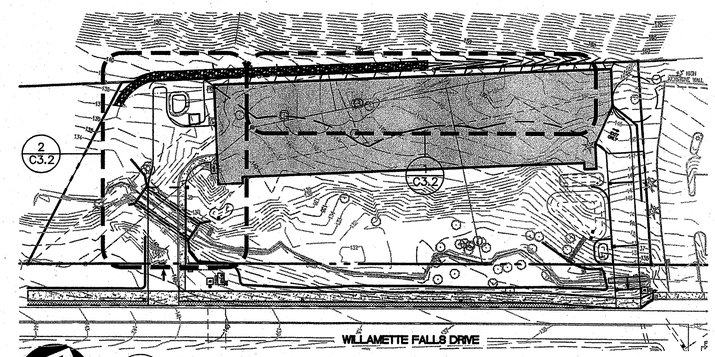
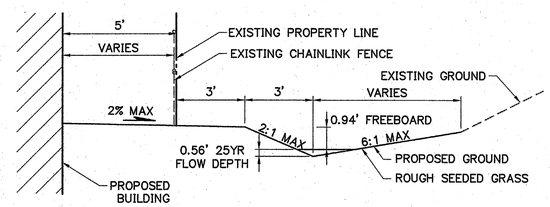
2 C3.2 GRADING ENLARGEMENT
1"=10'

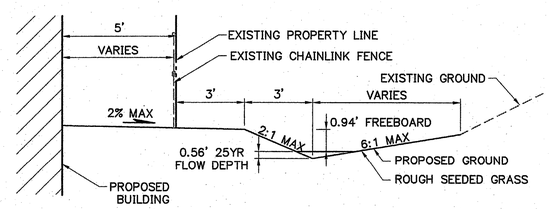


3 C3.2 KEY MAP
NTS



NOTE: WATERPROOF BUILDING SUCH THAT THE CHANNEL CAN REMAIN UNLINED.

4 C3.2 DRAINAGE SECTION TYPICAL
NTS

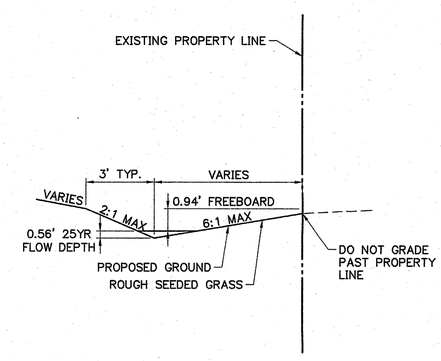


NOTE: WATERPROOF BUILDING SUCH THAT THE CHANNEL CAN REMAIN UNLINED.

5 C3.2 DRAINAGE SECTION TYPICAL
NTS

LEGEND

31.0	SURFACE ELEVATION SPOT GRADE
	SURFACE ELEVATION CONTOUR
	WQ BASIN
	SLOPE ARROW
WTB	WETLAND BOUNDARY
	CONCRETE RETAINING WALL
	ROCK RETAINING WALL
TW	GROUND ELEVATION AT TOP OF WALL
BW	GROUND ELEVATION AT BOTTOM OF WALL
BC	BOTTOM OF CURB
	CONCRETE CURB
	CLASS 50 RIPRAP



6 C3.2 DRAINAGE SECTION TYPICAL
NTS

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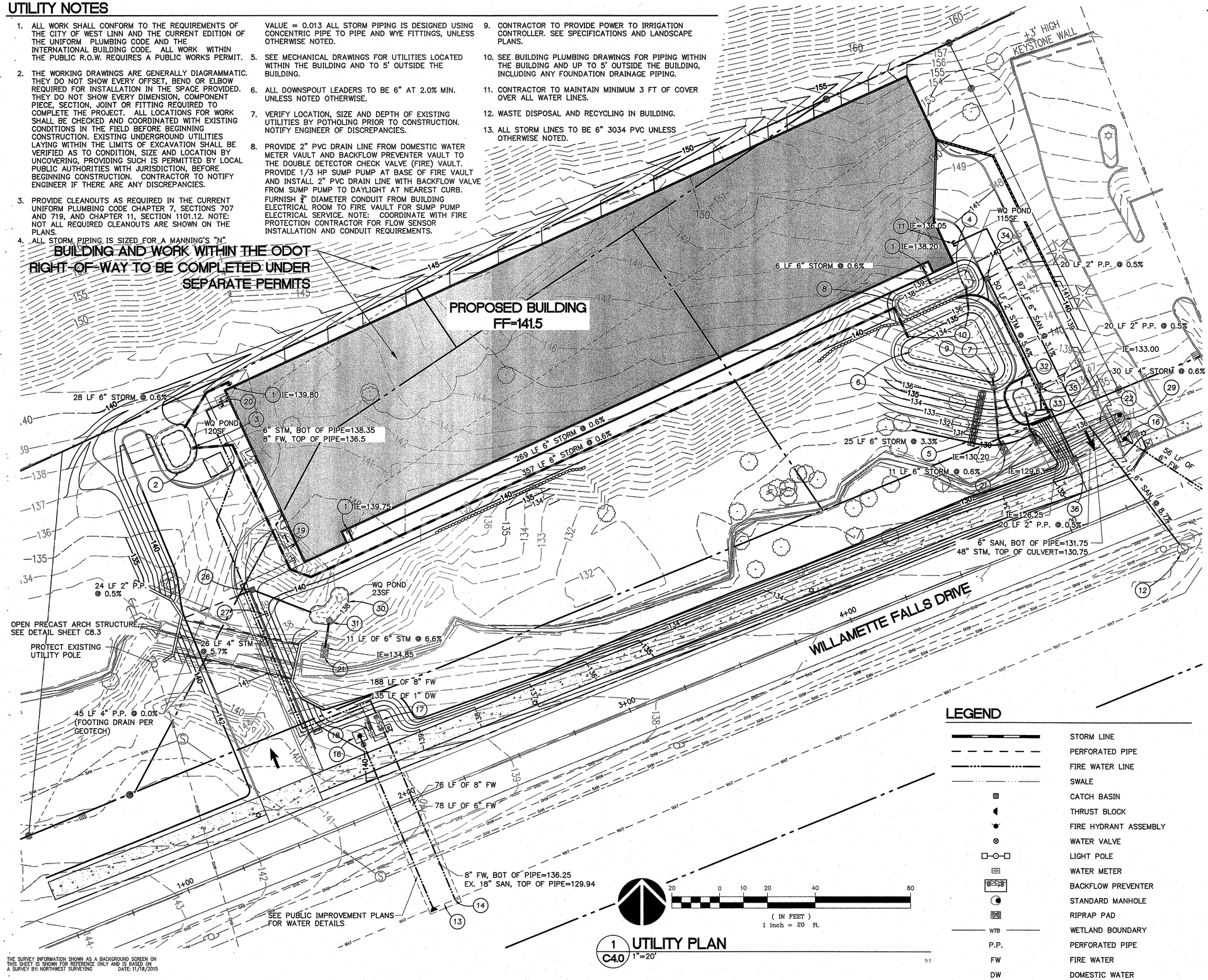
SHEET TITLE:
GRADING
ODOT PERMIT/
GRADING DETAIL

DRAWN BY: BLF
CHECKED BY: MWB
SHEET:
C3.2

JOB NO. 2150120.00

UTILITY NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF WEST LINN AND THE CURRENT EDITION OF THE UNIFORM PLUMBING CODE AND THE INTERNATIONAL BUILDING CODE. ALL WORK WITHIN THE PUBLIC R.O.W. REQUIRES A PUBLIC WORKS PERMIT.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IF THERE ARE ANY DISCREPANCIES.
3. PROVIDE CLEANOUTS AS REQUIRED IN THE CURRENT UNIFORM PLUMBING CODE CHAPTER 7, SECTIONS 707 AND 719, AND CHAPTER 11, SECTION 1101.12. NOTE: NOT ALL REQUIRED CLEANOUTS ARE SHOWN ON THE PLANS.
4. ALL STORM PIPING IS SIZED FOR A MANNING'S "N" VALUE = 0.013 ALL STORM PIPING IS DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE NOTED.
5. SEE MECHANICAL DRAWINGS FOR UTILITIES LOCATED WITHIN THE BUILDING AND TO 5' OUTSIDE THE BUILDING.
6. ALL DOWNSPOUT LEADERS TO BE 6" AT 2.0% MIN. UNLESS NOTED OTHERWISE.
7. VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES BY POTHOLING PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
8. PROVIDE 2" PVC DRAIN LINE FROM DOMESTIC WATER METER VAULT AND BACKFLOW PREVENTER VAULT TO THE DOUBLE DETECTOR CHECK VALVE (FIRE) VAULT. PROVIDE 1/3 HP SUMP PUMP AT BASE OF FIRE VAULT AND INSTALL 2" PVC DRAIN LINE WITH BACKFLOW VALVE FROM SUMP PUMP TO DAYLIGHT AT NEAREST CURB. FURNISH ¾" DIAMETER CONDUIT FROM BUILDING ELECTRICAL ROOM TO FIRE VAULT FOR SUMP PUMP ELECTRICAL SERVICE. NOTE: COORDINATE WITH FIRE PROTECTION CONTRACTOR FOR FLOW SENSOR INSTALLATION AND CONDUIT REQUIREMENTS.
9. CONTRACTOR TO PROVIDE POWER TO IRRIGATION CONTROLLER. SEE SPECIFICATIONS AND LANDSCAPE PLANS.
10. SEE BUILDING PLUMBING DRAWINGS FOR PIPING WITHIN THE BUILDING AND UP TO 5' OUTSIDE THE BUILDING, INCLUDING ANY FOUNDATION DRAINAGE PIPING.
11. CONTRACTOR TO MAINTAIN MINIMUM 3 FT OF COVER OVER ALL WATER LINES.
12. WASTE DISPOSAL AND RECYCLING IN BUILDING.
13. ALL STORM LINES TO BE 6" 3034 PVC UNLESS OTHERWISE NOTED.



1 C4.0 UTILITY PLAN 1"=20'

THE SURVEY INFORMATION SHOWN AS A BACKGROUND SCREEN ON THIS SHEET IS SHOWN FOR REFERENCE ONLY AND IS BASED ON A SURVEY BY: NORTHWEST SURVEYING DATE: 11/18/2015

LEGEND

- STORM LINE
- PERFORATED PIPE
- FIRE WATER LINE
- SWALE
- CATCH BASIN
- THRUST BLOCK
- FIRE HYDRANT ASSEMBLY
- WATER VALVE
- LIGHT POLE
- WATER METER
- BACKFLOW PREVENTER
- STANDARD MANHOLE
- RIPRAP PAD
- WTB — WETLAND BOUNDARY
- P.P. — PERFORATED PIPE
- FW — FIRE WATER
- DW — DOMESTIC WATER

KEYNOTES:

1. CONNECT 6" STORM PIPE TO ROOF DRAIN DOWNSPOUT
2. 120 SF VEGETATED WATER QUALITY FACILITY (BASIN A), SEE DETAIL 7/C8.0
   IE IN = 139.63 (6")
   TOP OF SOIL ELEV=138.88
3. CONSTRUCT CATCH BASIN, SEE DETAIL 3/C8.2
   RIM=139.63
   IE OUT=137.38 (6")
4. CONSTRUCT CATCH BASIN, SEE DETAIL 3/C8.2
   RIM=138.16
   IE OUT=135.91 (6")
5. EMERGENCY SPILLWAY
   TOP OF POND =136.42
   SPILLWAY IE=136.17 (3" BELOW TOP OF POND)
6. DETENTION POND (BASIN B), SEE DETAIL 8/C8.0
   IE IN = 135.42 (6")
   BOTTOM OF POND ELEV=133.67
   TOP OF DETENTION ELEV=135.42
   TOP OF FREEBOARD ELEV=136.42
7. STANDARD DETENTION POND OUTLET, SEE DETAIL 1/C8.2
   RIM=133.67
   IE IN=131.76 (4")
   IE OUT=131.56 (6" ORIFICE)
8. 115 SF VEGETATED WATER QUALITY FACILITY (BASIN E), SEE DETAIL 11/C8.0
   IE IN = 138.16 (6")
   TOP OF SOIL ELEV=137.41
9. STANDARD DETENTION POND OUTLET, SEE DETAIL 1/C8.2
   RIM=135.85
   ORIFICE ELEVATION=131.56 (1.96")
   ORIFICE ELEVATION=132.81 (2.65")
   IE OUT=131.02 (6")
10. IE=135.42 (6" PVC)
11. SANITARY CONNECTION TO BUILDING, COORDINATE WITH PLUMBING PLANS
12. CONNECT TO EXISTING SANITARY MANHOLE
    RIM=135.01
    IE IN=126.20 (6"), EXISTING
    IE IN=126.3 (6")
    IE OUT=126.10 (6"), EXISTING
13. 1" DOMESTIC WATER SERVICE WITH 1" METER, BY CITY OF WEST LINN
14. INSTALL 8" FIRE TAP TO 18" EXISTING MAIN
15. NOT USED
16. INSTALL STANDARD FIRE HYDRANT ASSEMBLY, SEE PUBLIC IMPROVEMENT PLANS
17. SEE PUBLIC IMPROVEMENTS FOR FIRE VAULT AND FDC.
18. INSTALL 1" WATER FROM METER TO BUILDING.
19. 1" DOMESTIC WATER CONNECTION TO BUILDING, COORDINATE WITH PLUMBING PLANS.
20. 8" FIRE WATER CONNECTION TO BUILDING, COORDINATE WITH PLUMBING PLANS.
21. 6'x3'x2' DEEP CLASS 50 RIPRAP PAD, SEE DETAIL 3/C8.1
22. INSTALL 30 LF OF 48" RIBBED PVC OR HDPE CULVERT CULVERT
23. NOT USED
24. NOT USED
25. NOT USED
26. CONSTRUCT CATCH BASIN, SEE DETAIL 5/C8.2 AND 3/C8.4
    RIM=140.85
    ORIFICE ELEVATION=139.31 (1.28")
    IE IN/OUT=139.31 (4")
27. IRRIGATION P.O.C., SEE LANDSCAPE PLANS
28. NOT USED
29. 48" PIPE CONNECTION TO PROPOSED MANHOLE OVER EXISTING CULVERT. SEE PUBLIC PLANS.
30. 23 SF VEGETATED WATER QUALITY FACILITY (BASIN C),
    IE IN = 137.83 (2")
    TOP OF SOIL ELEV=137.08
31. CONSTRUCT CATCH BASIN, SEE DETAIL 3/C8.2
    RIM=137.83
    IE OUT=135.58 (4")
32. 12 SF VEGETATED WATER QUALITY FACILITY (BASIN D),
    IE IN = 131.95 (4")
    TOP OF SOIL ELEV=131.20
33. CONSTRUCT CATCH BASIN, SEE DETAIL 3/C8.2
    RIM=131.95
    IE OUT=129.70 (6")
34. CONSTRUCT CATCH BASIN, SEE DETAIL 5/C8.2 AND 3/C8.4
    RIM=139.59
    ORIFICE ELEVATION=135.61 (0.48")
    IE IN/OUT=135.61 (4")
35. CONSTRUCT CATCH BASIN, SEE DETAIL 5/C8.2 AND 3/C8.4
    RIM=137.09
    ORIFICE ELEVATION=132.91 (0.90")
    IE IN/OUT=132.91 (2")
36. CONSTRUCT CATCH BASIN, SEE DETAIL 6/C8.2 AND 3/C8.4
    RIM=135.48
    ORIFICE ELEVATION=132.13 (0.36")
    IE IN/OUT=132.13 (4")

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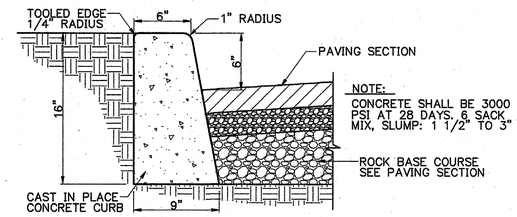
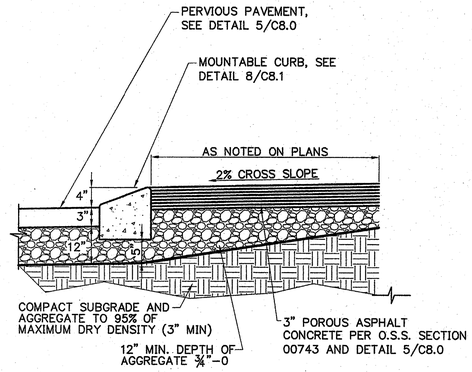
UTILITY PLAN

DRAWN BY: BLF
CHECKED BY: MWB
SHEET: C4.0
JOB NO. 2150120.00



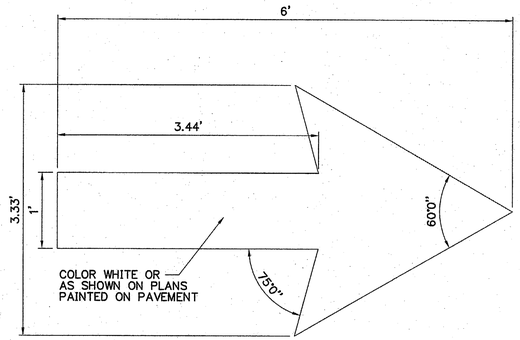
1 C8.0 CONCRETE VERTICAL CURB

N.T.S. VCURB



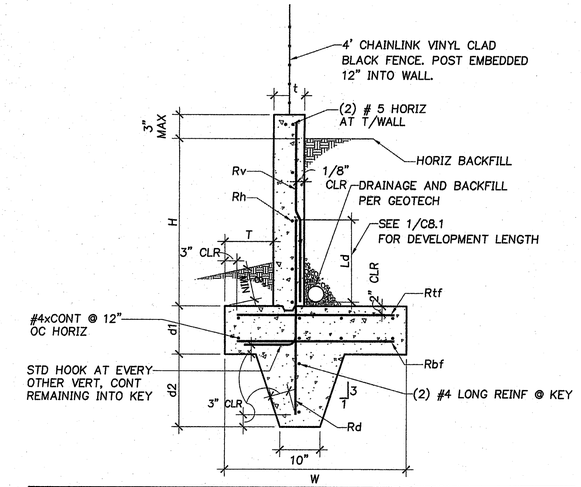
2 C8.0 POROUS AC SIDEWALK

N.T.S. SWALK



3 C8.0 DIRECTIONAL ARROW

N.T.S. DIRECTIONAL-ARROW



MAX H	t	W	T	d1	Rv	Rh	Rtf	Rbf	d2	Rd
8'-0"	0'-8"	6'-0"	0'-6"	1'-6"	#5 @ 4"O.C.	#4 @ 12"O.C.	#4 @ 6"O.C.	#4 @ 6"O.C.	2'-0"	#5 @ 12"O.C.
6'-0"	0'-8"	4'-0"	1'-0"	1'-6"	#5 @ 12"O.C.	#4 @ 12"O.C.	#4 @ 12"O.C.	#4 @ 12"O.C.	2'-0"	#4 @ 12"O.C.
4'-0"	0'-8"	4'-0"	1'-0"	1'-6"	#5 @ 12"O.C.	#4 @ 12"O.C.	#4 @ 12"O.C.	#4 @ 12"O.C.	0'-0"	#4 @ 12"O.C.

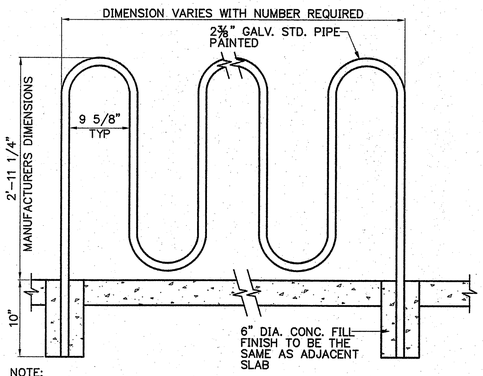
4 C8.0 RETAINING WALL

3/4" = 1'-0" FND-090

NOTE: REFER TO GEOTECHNICAL REPORT BY GEOTECH SOLUTIONS, INC. FOR PAVING SECTION REQUIREMENTS

5 C8.0 PERVIOUS AC PAVEMENT SECTION

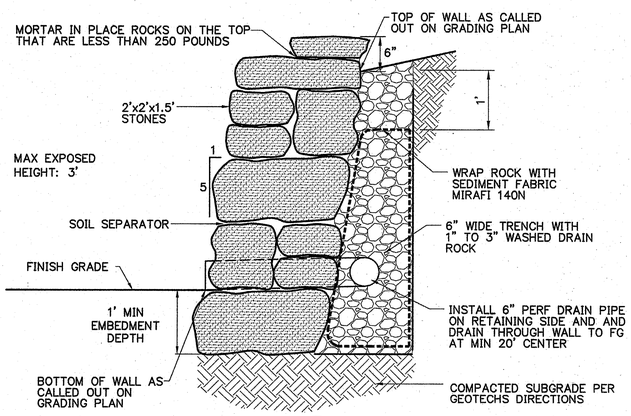
N.T.S. AC-PAVE



NOTE:
MANUFACTURERS DIMENSIONS VARY. CONTRACTOR TO VERIFY THAT BIKE RACK TO BE INSTALLED WILL FIT INTO THE SPACE PROVIDED.

6 C8.0 RIBBON BIKE RACK

N.T.S. BIKERACK-1

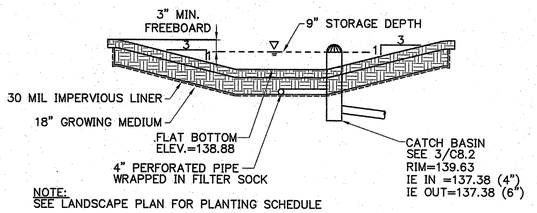


9 C8.0 ROCK RETAINING WALL

N.T.S. ROCKRETNWALL-1

GENERAL NOTES

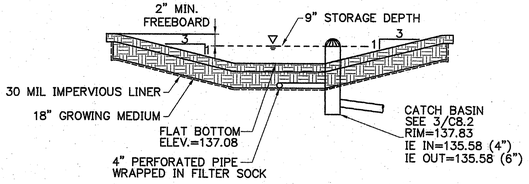
1. BATTER WALL 1:5
2. MAINTAIN COURSES LEVEL AND SHIM WITH EARTH AND STONE CHIPS TO PROVIDE STABLE COURSING.
3. PLACE QUARRY SPALLS AS REQUIRED, SUCH THAT OPENINGS BETWEEN ROCKS ARE FILLED.
4. CONTRACTOR SHALL USE QUARRY STONES THAT CONTAIN SIGNIFICANT FLAT AREAS AND WHICH CAN BE PLACED IN A MANNER THAT PROVIDES SIGNIFICANT BEARING BETWEEN ROCK COURSES. ROCKS THAT ARE ROUNDED, OR THAT DO NOT MATCH THE SPACES THAT ARE MADE AVAILABLE BY THE LOWER COURSE SHALL NOT BE PLACED.
5. ROCKS SHALL BE STAGGERED SO THAT THERE ARE NO CONTINUOUS VERTICAL JOINTS IN THE WALL. EACH ROCK MUST BEAR ON AT LEAST TWO ROCKS BELOW IT.
6. THE LONG DIMENSION OF ALL ROCKS SHALL EXTEND BACK TOWARDS THE EXCAVATION TO PROVIDE MAXIMUM STABILITY.
7. VOIDS BETWEEN ROCKS MUST BE SMALL ENOUGH THAT THE GRAVEL CAN NOT BE WASHED THROUGH THE FACE. LARGER VOIDS MUST BE CHINKED WITH SPALLS OR SMALLER STONES (OR GEOTEXTILE FABRIC PLACED BETWEEN THE BACKFILL AND FACE ROCKS).
8. MINIMUM WEIGHT OF ANY ROCK IN WALL TO BE 250 POUNDS.



NOTE:
SEE LANDSCAPE PLAN FOR PLANTING SCHEDULE

7 C8.0 POND SCHEMATIC "A"

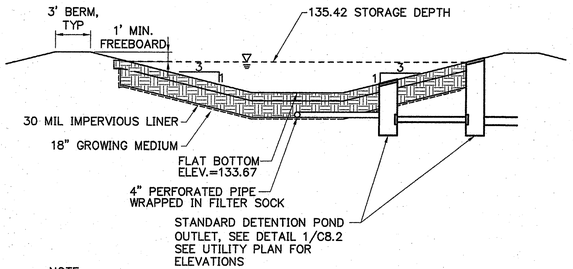
N.T.S. POND-XSEC



NOTE:
SEE LANDSCAPE PLAN FOR PLANTING SCHEDULE

9 C8.0 POND SCHEMATIC "C"

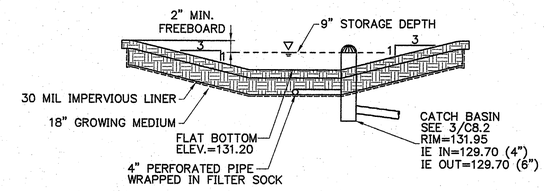
N.T.S. POND-XSEC



NOTE:
SEE LANDSCAPE PLAN FOR PLANTING SCHEDULE

8 C8.0 DETENTION POND SCHEMATIC "B"

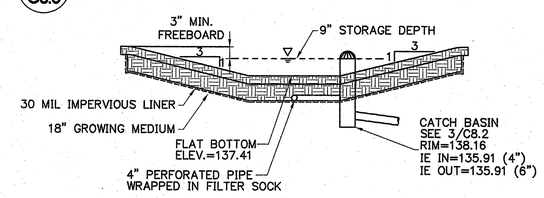
N.T.S. POND-XSEC



NOTE:
SEE LANDSCAPE PLAN FOR PLANTING SCHEDULE

10 C8.0 POND SCHEMATIC "D"

N.T.S. POND-XSEC



NOTE:
SEE LANDSCAPE PLAN FOR PLANTING SCHEDULE

11 C8.0 POND SCHEMATIC "E"

N.T.S. POND-XSEC

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2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER #50000 OREGON MAY. 11, 2000 RALPH J.R. HENDERSON
EXPIRES: 6/30/19

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C8.0

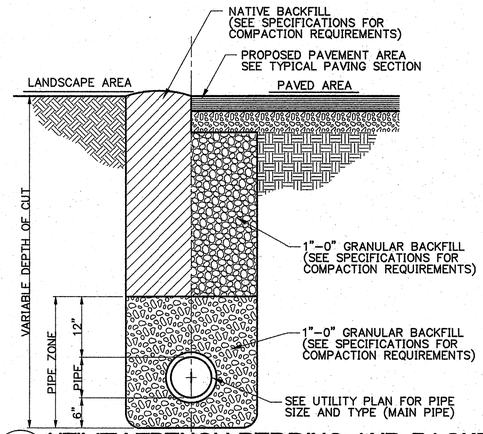
JOB NO. 2150120.00

CONCRETE LAP SPLICES						
BAR	LENGTH (U.O.N.) IN INCHES					
	F'c = 3000 PSI		F'c = 4000 PSI		F'c = 5000 PSI	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	36	21	33	19	29	17
#4	50	29	43	25	39	23
#5	61	36	55	32	48	28
#6	73	43	63	37	56	33
#7	107	63	93	55	83	49
#8	122	72	105	62	93	55
#9	137	81	120	71	107	63

NOTES:
1. WHEN TWO BAR SIZES ARE SPLICED, USE LAP LENGTH FOR SMALLER BAR
2. TABLE IS FOR CLASS B SPLICES
3. TABLE DOES NOT APPLY TO SPLICES WITH EPOXY –COATED BARS
4. FOR LIGHTWEIGHT CONCRETE, MULTIPLY VALUES BY 1.3
5. YIELD STRENGTH OF THE STEEL BARS IS ASSUMED TO BE 60,000 PSI
6. TOP BARS ARE DEFINED AS HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW THE BARS
7. SEE DRAWINGS FOR EXCEPTIONAL CASES

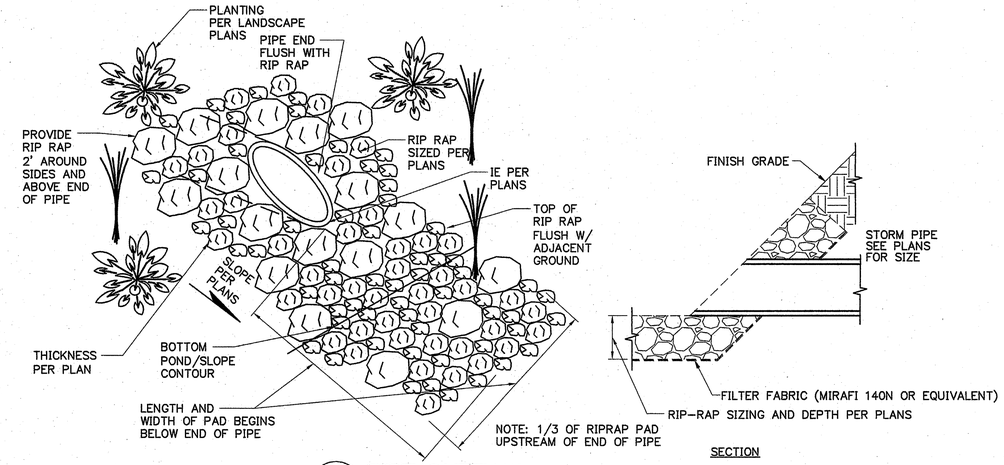
1 C8.1 TYPICAL LAP SPLICE

1 1/2"=1'-0" TD-12



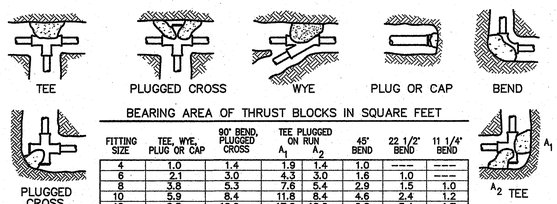
2 C8.1 UTILITY TRENCH BEDDING AND BACKFILL

N.T.S. TRENCH1



3 C8.1 PIPE OUTFALL

N.T.S. PIPE-OUTFALL1 1:1



BEARING AREA OF THRUST BLOCKS IN SQUARE FEET

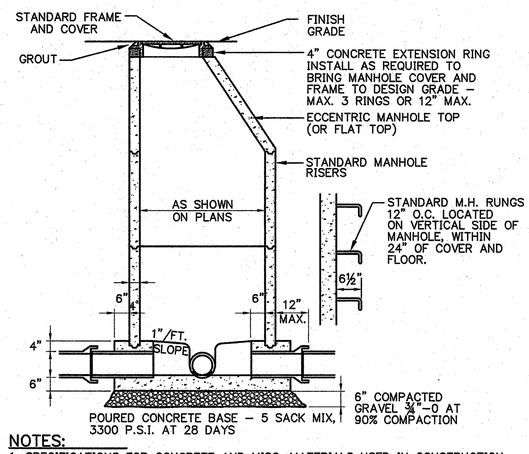
FITTING SIZE	TEE, WYE, PLUG OR CAP	90° BEND, PLUGGED CROSS	TEE PLUGGED ON RUN A_1	TEE PLUGGED ON RUN A_2	45° BEND	22 1/2° BEND	11 1/4° BEND
4	1.0	1.4	1.9	1.4	1.0	---	---
6	2.1	3.0	4.3	3.0	1.6	1.0	---
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.4	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. THE REQUIRED THRUST BEARING AREAS FOR SPECIAL CONNECTIONS ARE SHOWN ENCIRCLED ON THE PLANS: E.G. 15 INDICATES 15 SQUARE FEET BEARING AREA REQUIRED.
4. IF NOT SHOWN ON PLANS REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED BELOW.
5. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL.
6. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING PRESSURE STRESS OF 2,000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:

BEARING AREA = (TEST PRESSURE/150) x (2000/SOIL BEARING STRESS) x (TABLE VALUE)

4 C8.1 WATERLINE THRUST BLOCKING

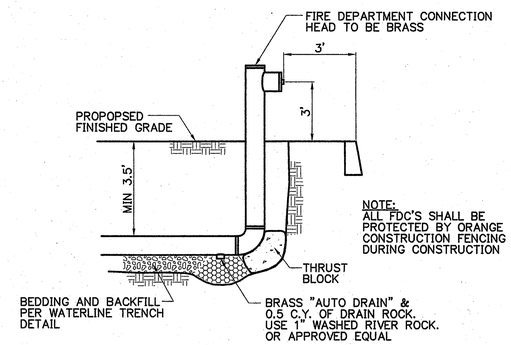
N.T.S. THRUST



NOTES:
1. SPECIFICATIONS FOR CONCRETE AND MISC. MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT APWA STANDARD SPECIFICATIONS.

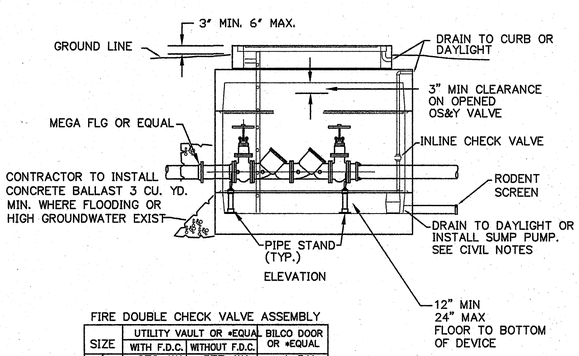
5 C8.1 STANDARD MANHOLE

N.T.S. STDMH 1:1



6 C8.1 FDC DETAIL

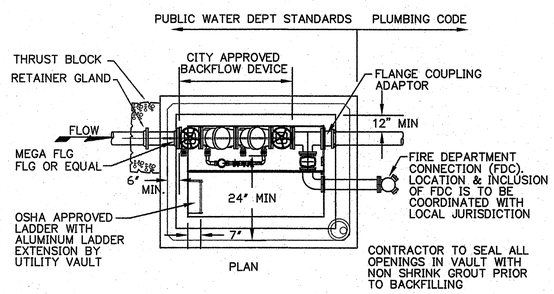
N.T.S. 1:1



FIRE DOUBLE CHECK VALVE ASSEMBLY

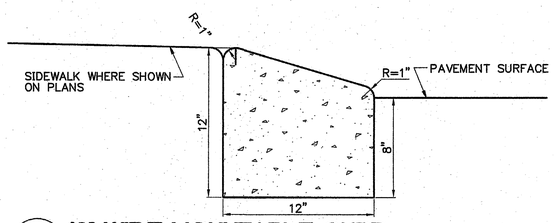
SIZE	UTILITY VAULT OR *EQUAL WITH F.D.C.	UTILITY VAULT OR *EQUAL WITHOUT F.D.C.	BILCO DOOR OR *EQUAL
4	676–WA	577–WA	J–5AL
6	687–WA	676–WA	J–5AL
8	5106–LA	687–WA	JD–3AL
10	5106–LA	2106–LA	JD–3AL

*CITY ENGINEER APPROVED EQUAL



7 C8.1 DOUBLE DETECTOR CHECK VALVE AND VAULT

N.T.S. DDCV



8 C8.1 12" WIDE MOUNTABLE CURB

N.T.S. BOLLCURB

REVISED JUNE 21, 2017
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2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER #90660 OREGON MAY. 11, 2000 RALPH J.R. HENDERSON
EXPIRES: 6/30/19

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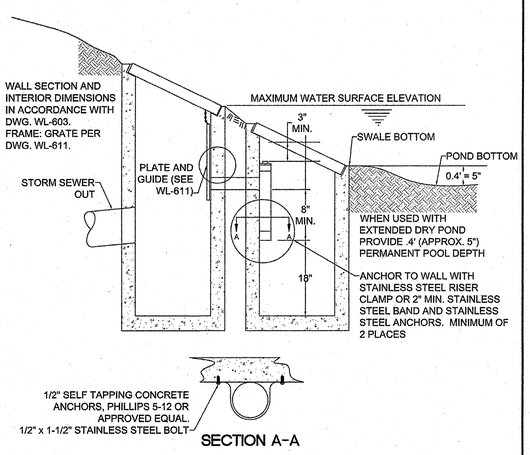

NOTE:

1. CONNECTING PIPE AND TEE SHALL BE 4", 6", OR 8" AWWA C-900 OR ASTM 3034 PVC,AND ONE SIZE LARGER THAN THE ORIFICE OPENING.
2. MAXIMUM ORIFICE OPENING SHALL BE 6" DIAMETER.
3. STRUCTURES SHALL CONFORM TO STANDARD DRAWING NO. 390 DITCH INLET.
4. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWING NO. 400, DITCH INLET FRAME AND GRATE.
5. PLATE AND GUIDE SHALL BE SECURED FLUSH AGAINST WALL OF STRUCTURE AS APPROVED.
6. MAINTAINANCE ACCESS REQUIRED TO WITHIN 10' OF CENTER OF BOTH STRUCTURES.

1 / C8.2

STANDARD DETENTION POND OUTLET

City of West Linn | DATE: 2010 | DRAWING NO. WL-610 | FILE NO.

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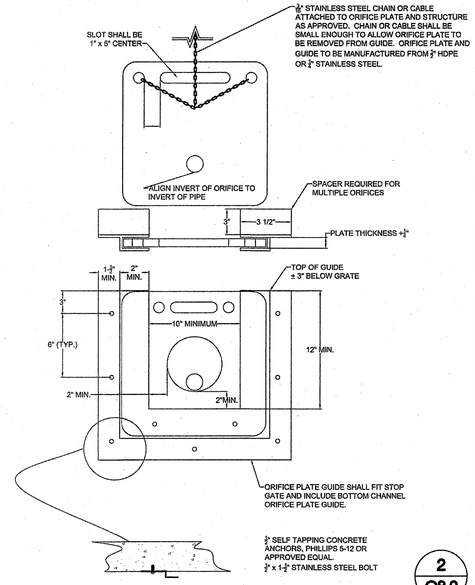

NOTE:
FOR MULTIPLE ORIFICE APPLICATION, A 3" MIN. SPACER IS REQUIRED AS SHOWN. SPACER TO MATCH PLATE GUIDE DIMENSIONS, WIDTH, MATERIAL WITH A WATER TIGHT SEAL.

2 / C8.2

PLATE AND GUIDE

City of West Linn | DATE: 2010 | DRAWING NO. WL-611 | FILE NO.

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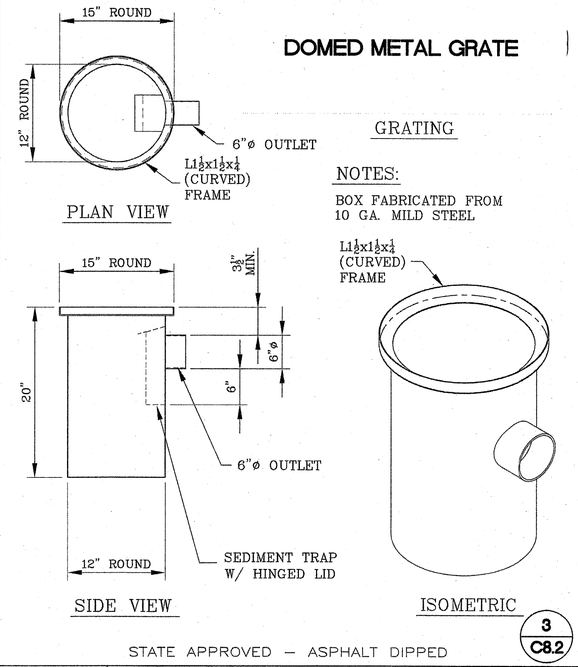

DOMED METAL GRATE

GRATING

NOTES:

BOX FABRICATED FROM 10 GA. MILD STEEL

STATE APPROVED — ASPHALT DIPPED

3 / C8.2

GSB Gibson Steel Basins SINCE 1972
247 Washington St. Eugene, Or. 97401 ph:(541) 687 - 8672 fax:344-0207

12" ROUND – 6"ø OUTLET — MODIFIED
ROUND STORM WATER CATCH BASIN — DWG # R1
PROJ. MAN. DOUG P. | DWN. PAUL G. | SCALE NONE
DATE: JAN. 23, 06 | MODEL: RCB12-20HB-6

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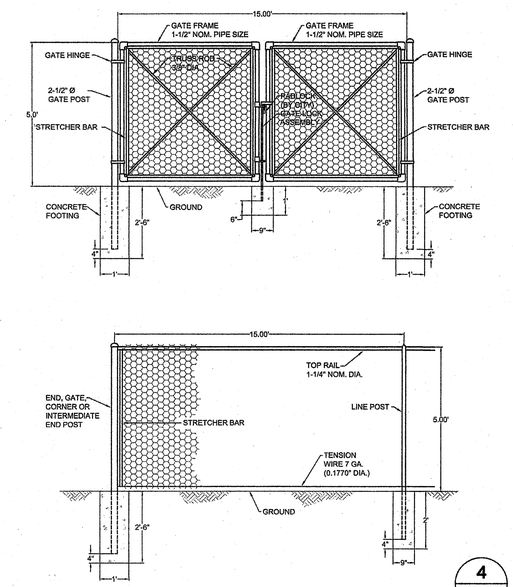

NOTE:

1. BLACK POWDER COATING ON ALL HARDWARE AND ACCESSORIES IS REQUIRED.
2. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF OREGON STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

4 / C8.2

SURFACE WATER FACILITY FENCE

City of West Linn | DATE: 2010 | DRAWING NO. WL-616 | FILE NO.

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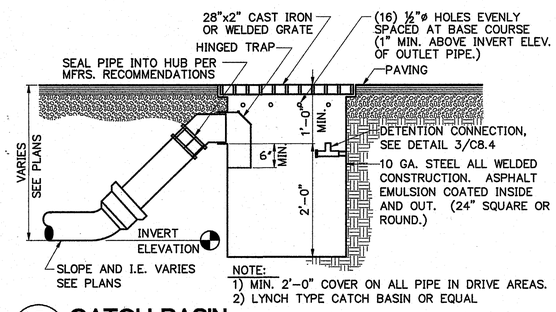

NOTE:
1) MIN. 2'-0" COVER ON ALL PIPE IN DRIVE AREAS.
2) LYNCH TYPE CATCH BASIN OR EQUAL

5 / C8.2

CATCH BASIN

N.T.S.
LYNCH STYLE

C-BASIN

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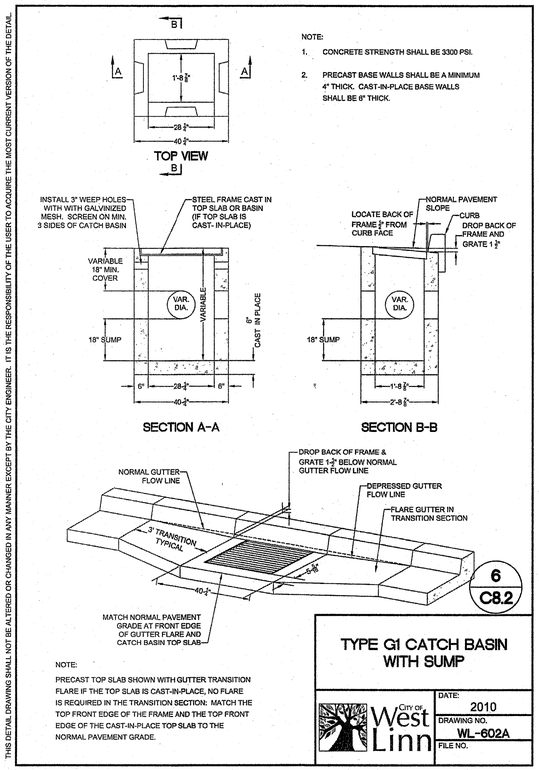

NOTE:

1. CONCRETE STRENGTH SHALL BE 3300 PSI.
2. PRECAST BASE WALLS SHALL BE A MINIMUM 4" THICK. CAST-IN-PLACE BASE WALLS SHALL BE 6" THICK.

NOTE:
PRECAST TOP SLAB SHOWN WITH GUTTER TRANSITION FLARE IF THE TOP SLAB IS CAST-IN-PLACE, NO FLARE IS REQUIRED IN THE TRANSITION SECTION: MATCH THE TOP FRONT EDGE OF THE FRAME AND THE TOP FRONT EDGE OF THE CAST-IN-PLACE TOP SLAB TO THE NORMAL PAVEMENT GRADE.

6 / C8.2

TYPE G1 CATCH BASIN WITH SUMP

City of West Linn | DATE: 2010 | DRAWING NO. WL-602A | FILE NO.

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2400 AND 2450 WILLAMETTE FALLS DRIVE

REGISTERED PROFESSIONAL ENGINEER — OREGON — 56660 PE — RALPH J. R. HENDERSON — EXPIRATION DATE: 6/30/17

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NOTE:
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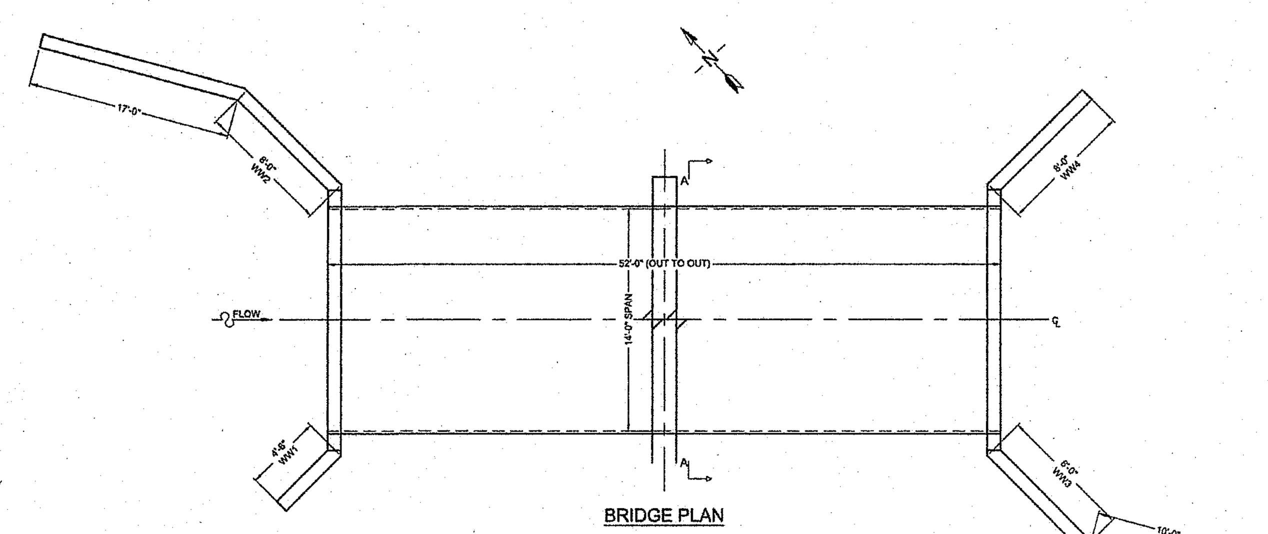

BRIDGE PLAN

1 / C8.3

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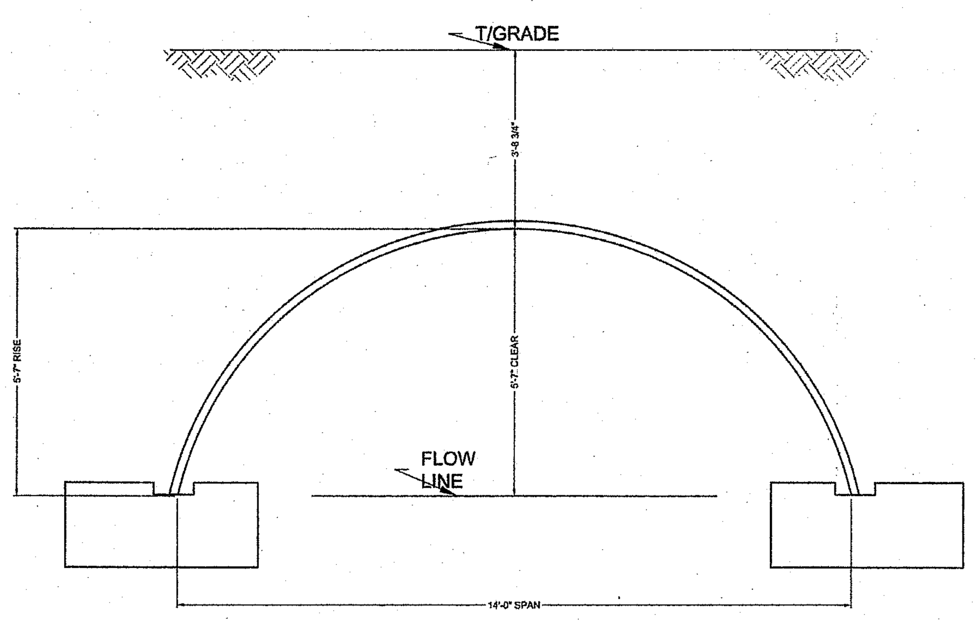
CONTECH STRUCTURAL PLATE
PROPOSAL DRAWING

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

PROJECT No.: 543411 SEQ. No.: 010

MARK	DATE	REVISION DESCRIPTION	BY

SHEET NO.: 1 OF 7



CROSS SECTION A-A

NOTES
- MEASUREMENTS ARE TO THE INSIDE CRESTS OF THE CORRUGATION
- DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

2 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

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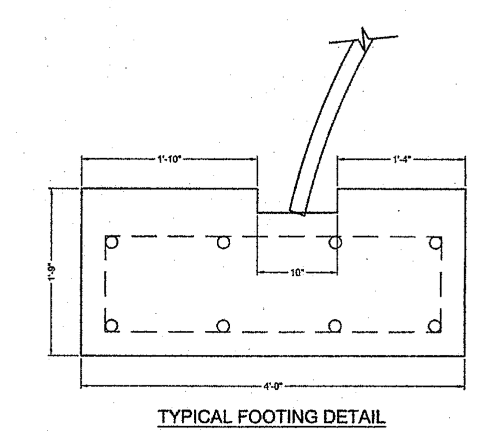

TYPICAL FOOTING DETAIL

NOTES
- FOOTING DIMENSIONS AND DETAILS SHOWN ARE CONCEPTUAL ONLY
- FINAL DIMENSIONS & DETAILS TO BE FURNISHED BY THE PROJECT ENGINEERS
- FOUNDATION REINFORCING TO BE DETERMINED

3 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

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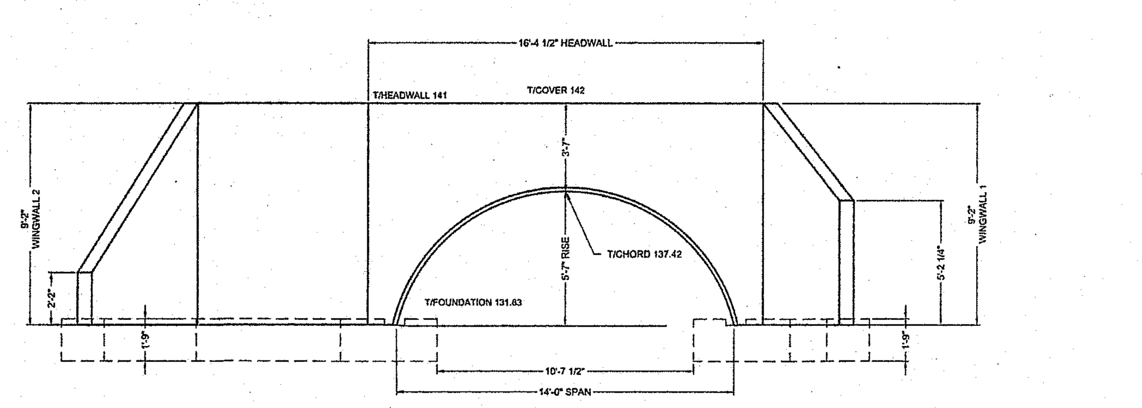

INLET END ELEVATION

4 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

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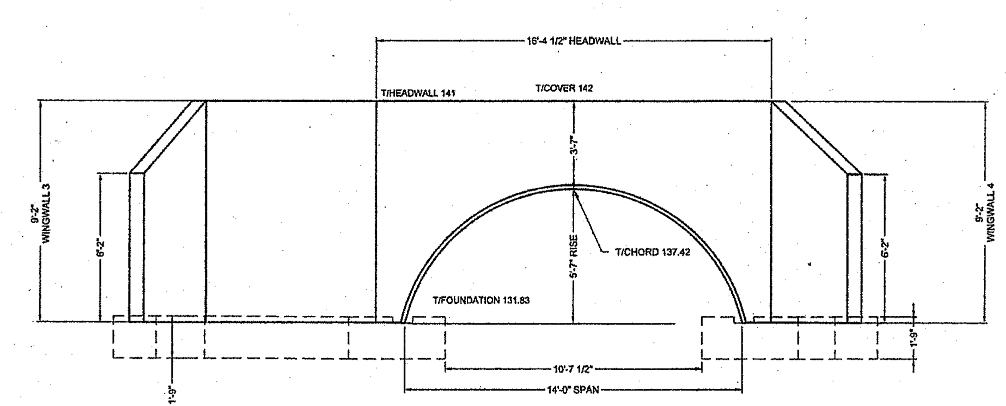

OUTLET END ELEVATION

5 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
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WEST LINN, OR

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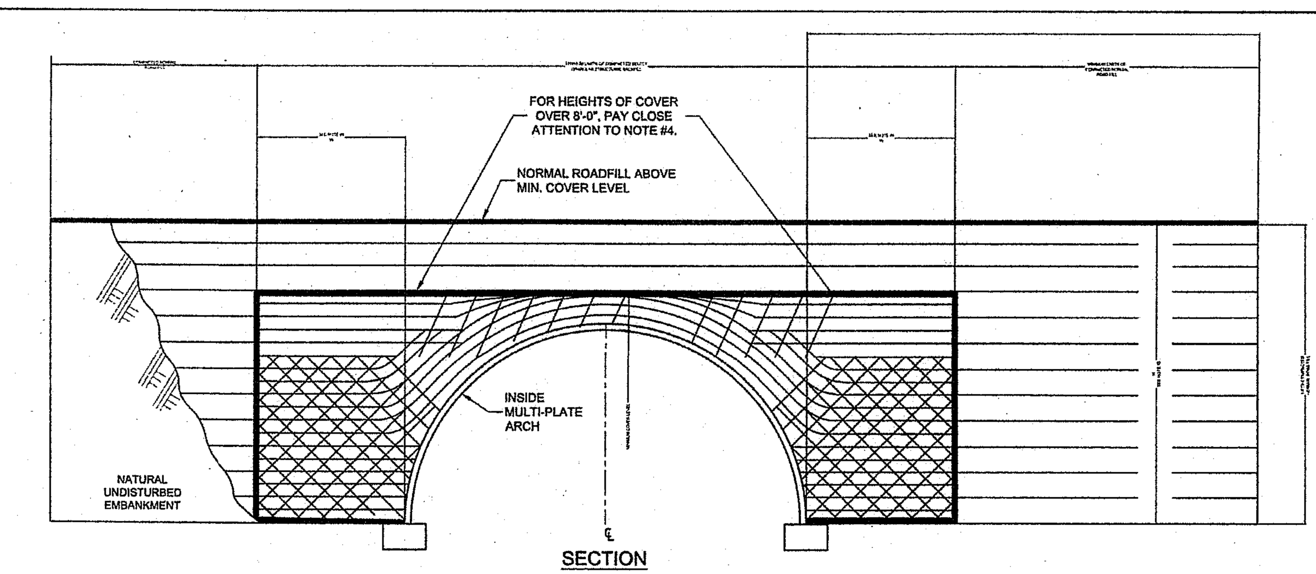

SECTION

CRITICAL BACKFILL ZONE, PRESSURE ON SOIL GREATEST HERE.

SELECT GRANULAR STRUCTURAL BACKFILL LIMITS.

INITIAL LIFTS OVER CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH SMALL TRACTOR (D-4 OR SMALLER) DRAWN EQUIPMENT.

NOTES:

1. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (6"-8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-180.
2. COMPLETE AND REGULAR MONITORING OF THE ARCH IS NECESSARY DURING ALL BACKFILLING STEPS.
3. PREVENT EXCESSIVE DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
4. TRENCH WIDTH AND / OR SELECT FILL ENVELOPE WIDTH SHALL BE BY DIRECTION OF THE ENGINEER OF RECORD. A TYPICAL WIDTH OF4 FEET IS DEPICTED, BUT GREATER OR LESSER DISTANCE MAY BE REQUIRED DEPENDING UPON SITE-SPECIFIC CONDITIONS. THIS WIDTH DEPENDS ON FACTORS SUCH AS THE LATERAL PRESSURES EXERTED BY THE STRUCTURE ONTO THE ADJACENT SOIL FOR THE GIVEN LOADING CONDITIONS, THE STRUCTURE SHAPE, THE QUALITY OF THE SELECT FILL MATERIAL AND THE STRENGTH OF THE IN SITU EMBANKMENT / TRENCH MATERIAL. THESE FACTORS MUST BE EVALUATED BY THE PROJECT ENGINEER FOR EACH SPECIFIC SITUATION.
5. H = STRUCTURE RISE + COVER.

ADDITIONAL BACKFILL NOTES:

SATISFACTORY BACKFILL MATERIAL, PROPER PLACEMENT, AND COMPACTION ARE KEY FACTORS IN OBTAINING MAXIMUM STRENGTH AND STABILITY.

THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATERIAL THAT COULD CAUSE HARD SPOTS OR DECOMPOSE TO CREATE VOIDS. BACKFILL MATERIAL SHOULD BE WELL GRADED GRANULAR MATERIAL THAT MEETS THE REQUIREMENTS OF AASHTO M-145 FOR SOIL CLASSIFICATIONS A-1, A-2, A-3. BACKFILL MUST BE REPLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 6" LOOSE LIFTS. EACH LIFT IS TO BE COMPACTED TO A MINIMUM OF 90% DENSITY PER AASHTO T-180.

A HIGH PERCENTAGE OF SILT OR FINE SAND IN THE NATIVE SOILS SUGGESTS THE NEED FOR A WELL GRADED GRANULAR BACKFILL MATERIAL TO PREVENT SOIL MIGRATION.

DURING BACKFILL, ONLY SMALL TRACKED VEHICLES (D-4 OR SMALLER) SHOULD BE NEAR THE STRUCTURE AS FILL PROGRESSES ABOVE THE CROWN AND TO THE FINISHED GRADE.

6 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

SHEET NO.: 6 OF 7

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CONTECH MULTI-PLATE® SINGLE RADIUS ARCH

I - GENERAL

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to latest edition unless otherwise noted.

1.1.1 ASTM A-761 "Corrugated Steel Structural Plate, Zinc Coated for Field-Bolted Pipe, Pipe-Arches and Arches" (AASHTO Designation M-167).

1.1.2 AASHTO Standard Specification for Highway Bridges - Section 12.

1.1.3 AASHTO Standard Specification for Highway Bridges - Section 26.

1.2 DEFINITIONS

1.2.1 Owner - In these specifications the word "Owner" shall mean INSERT OWNER NAME OR PURCHASER.

1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Engineer of Record or Owner's designated engineering representative.

1.2.3 Manufacturer - In these specifications the word "Manufacturer" shall mean CONTECH Construction Products Inc. 800-338-1122 Matthew D Houser

1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any installation work under the terms of these specifications.

1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.

1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.

2.0 GENERAL CONDITIONS

2.1 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein. This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications. This work is to be accomplished under the observation of the Owner or his designated representative.

2.2 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner shall be notified immediately. The material which the Contractor believes to be a changed condition shall not be disturbed so that the owner can investigate the condition.

2.3 The construction shall be performed under the direction of the Engineer.

2.4 All aspects of the structure design and site layout including foundations, backfill, end treatments and necessary scour consideration shall be performed by the Engineer.

Any installation guidance provided herein shall be endorsed by the Engineer or superceded by the Engineer's plans and specifications.

II - MULTI-PLATE SINGLE RADIUS ARCH.

1.0 GENERAL

1.1 Manufacturer shall fabricate the MP Single Radius Arch culvert as shown on the plans. Fabrication shall conform to the requirements of ASTM A-761 and shall consist of plates, fasteners, and appurtenant items.

Plate thickness, end treatment and type of invert and foundation shall be as indicated on the plans. All manufacturing processes including corrugating, punching, curving and required galvanizing shall be performed within the United States of America.

1.2 The contractor shall verify all field dimensions and conditions prior to ordering materials.

2.0 DIMENSIONS

2.1 The proposed structure shall be a MP Single Radius Arch with the following dimensions:

Span: 14'-0" Rise: 5'-7"
Gage: 12

2.2 All plan dimensions on the contract drawings are measured in a true horizontal plan unless otherwise noted.

3.0 ASSEMBLY AND INSTALLATION

3.1 Bolts and nuts shall conform to the requirements of ASTM A-449. The structure shall be assembled in accordance with the plate layout drawings provided by the manufacturer and per the manufacturer's recommendations.

Bolts shall be tightened using an applied torque of between 100 and 300 ft.-lbs.

3.2 The structure shall be installed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 26.

3.3 Trench excavation shall be made in embankment material that is structurally adequate. The trench width shall be shown on the plans. Poor quality in situ embankment material must be removed and replaced with suitable backfill as directed by the Engineer.

3.4 Bedding preparation is critical to both structure performance and service life. The bed should be constructed to uniform line and grade to avoid distortions that may create undesirable stresses in the structure and/or rapid deterioration of the roadway. The bed should be free of rock formations, protruding stones, frozen lumps, roots, and other foreign matter that may cause unequal settlement.

3.5 Bedding shall provide a minimum of 4,000 psf bearing capacity. Foundation details for bearing capacity less than 4,000 psf shall be approved by the Engineer.

3.6 The structure shall be assembled in accordance with the Manufacturer's Instructions. All plates shall be unloading and handled with reasonable care. Plates shall not be rolled or dragged over gravel rock and shall be prevented from striking rock or other hard objects during placement in trench or on bedding.

When assembled on a cast in place spread footing, the structure shall be assembled in the footing starting at the upstream end. When assembled on a full invert or on flexible footing pads, the invert or footing pad shall be placed starting at the downstream end. The structure shell shall be assembled on the invert or footing pad starting at the inlet end. Circumferential seams shall be installed with the plate laps shingled downstream as viewed from the inside of the structure.

The structure shall be backfilled using clean well graded granular material that meets the requirements of AASHTO M-145 for soil classifications A-1, A-2 or A-3.

Backfill must be placed symmetrically on each side of the structure in 6 to 8 inch loose lifts. Each lift shall be compacted to a minimum of 90 percent density per AASHTO T-180

3.7 Construction loads that exceed highway load limits are not allowed to cross the structure without approval from the Engineer.

Normal highway traffic is not allowed to cross the structure until the structure has been backfilled and paved. If the road is unpaved, cover allowance to accommodate rutting shall be as directed by the Engineer.

GROUP CLASSIFICATION	A-1	A-2	A-3*
Sieve Analysis Percent Passing			
No. 10 (2.000 mm)	—	—	—
No. 40 (0.425 mm)	50 max.	—	51 max.
No. 200 (0.075 mm)	25 max.	35 max.	10 max.
Characteristics of Fraction			
Passing No. 40 (0.425 mm)			
Liquid Limits	—	40 max.	—
Plasticity Index	6 max.	10 max.	Non Plastic
Usual Materials	Stone Fragment, Gravel and Sand	Gravel or Sand With Silt or clay	Sand
Adapted from AASHTO M-145			

* Fine beach sands, windblown sands, stream deposited sands, etc., exhibiting fine, rounded particles and typically classified by AASHTO M-145 as A-3 material should be avoided.

7 / C8.3

MULTIPLATE SINGLE RADIUS ARCH 14'-0" X 5'-7"
NW SELF STORAGE WEST LINN
MACKENZIE
WEST LINN, OR

SHEET NO.: 7 OF 7

M.

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SHEET:
C8.3

JOB NO. 2150120.00

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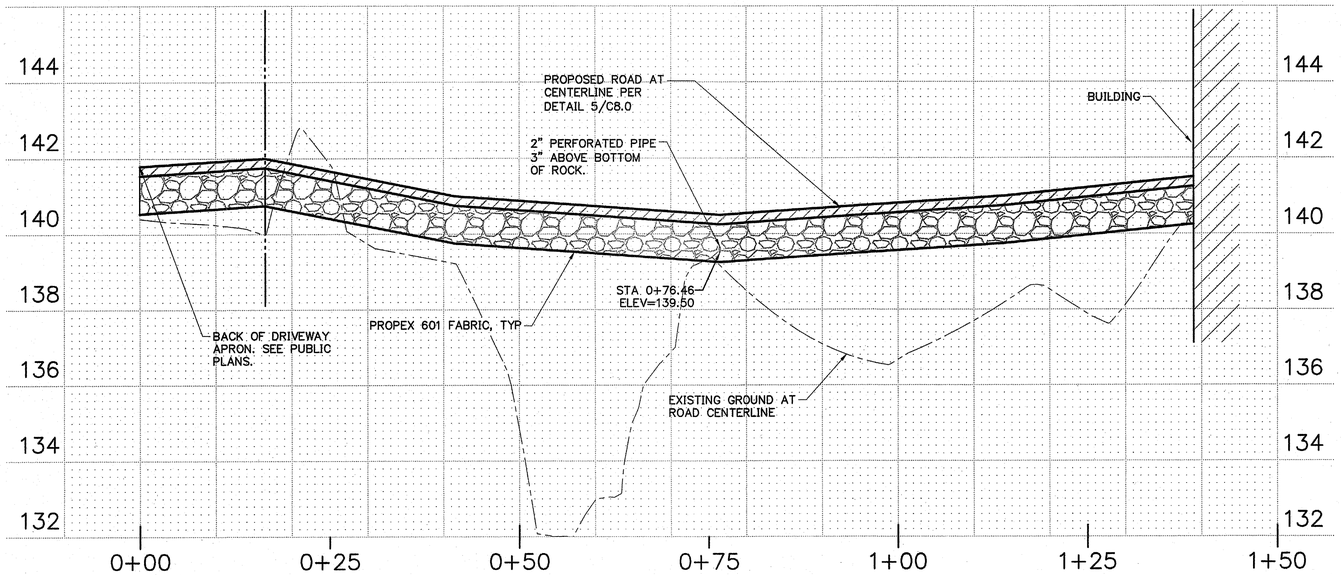
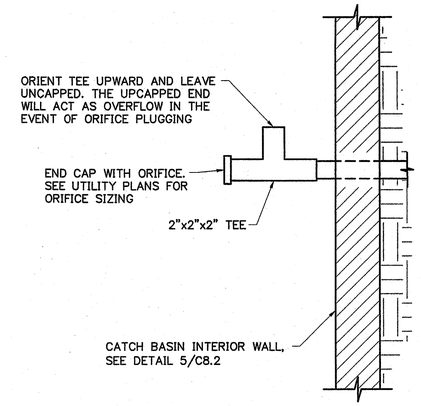


1 / C8.4 WEST DRIVE ENTRY PROFILE

1" = 10' HORIZONTAL
1" = 2' VERTICAL



3 / C8.4 STRUCTURE DETENTION CONNECTION

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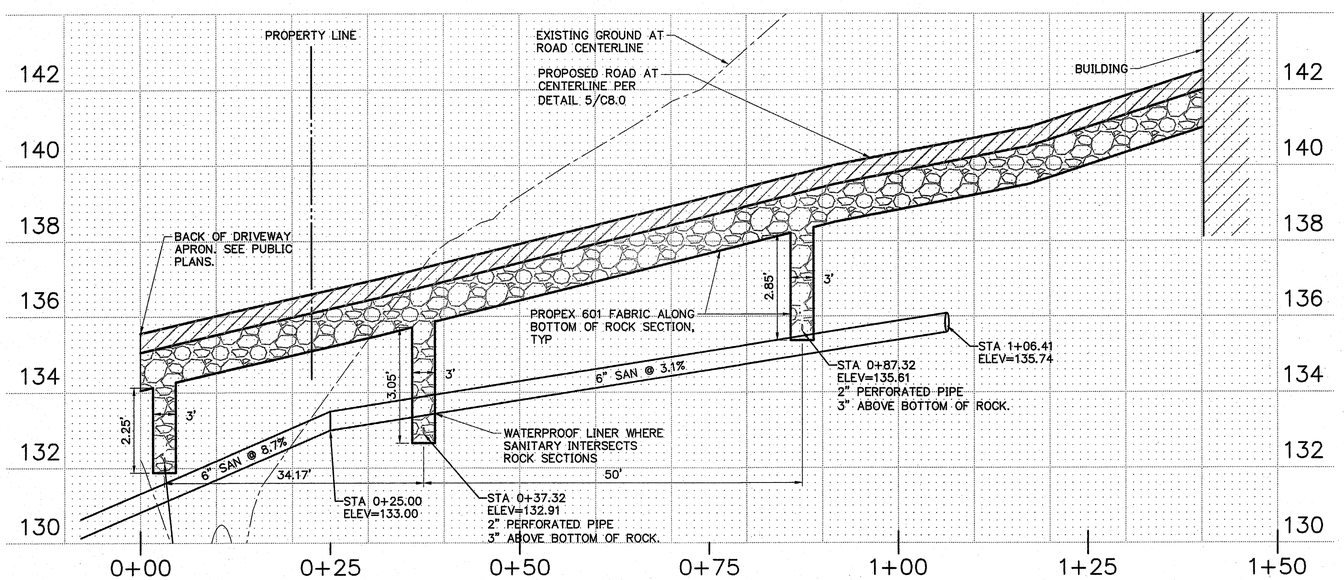
1:1



2 / C8.4 EAST DRIVE ENTRY PROFILE

1" = 10' HORIZONTAL
1" = 2' VERTICAL

1:1

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REGISTERED PROFESSIONAL ENGINEER
56660 PE
OREGON
JULY 12, 2000
DALE R. HENDERSON
EXPIRATION DATE 6/30/17

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SHEET:
C8.4

JOB NO. 2150120.00

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INCLUDING LOCATION OF PROPERTY LINES, PRIOR TO BEGINNING ANY WORK. REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
2. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, LINES, PIPES, VAULTS, OR BOXES PRIOR TO EXCAVATION. ANY DAMAGE TO ANY KNOWN EXISTING UTILITY ELEMENTS SHALL BE REPAIRED PROPERLY AND IMMEDIATELY AT THE CONTRACTORS EXPENSE AND AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION WHEN UNKNOWN OBSTRUCTIONS AND/OR DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE OF UNKNOWN OBSTRUCTIONS AND/OR DIFFERENCES. CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO PROVIDE THIS NOTIFICATION.
4. PRIOR TO REMOVING ANY EXISTING FEATURES, CONTRACTOR SHALL REVIEW AND CONFIRM EXTENT OF DEMOLITION WITH OWNER'S REPRESENTATIVE.
5. CONTRACTOR SHALL PROTECT ALL EXISTING FEATURES, TREES & SHRUBS TO REMAIN FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING ITEMS DESIGNATED TO REMAIN I.E. CURBS, WALKS, PLANT MATERIAL, LAWN OR FENCES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
6. CONTRACTOR SHALL REMOVE FROM THE SITE AND LEGALLY DISPOSE OF ALL DEBRIS AND EXCAVATED MATERIAL NOT REQUIRED FOR FILL. NO RUBBISH OR DEBRIS SHALL BE BURIED ON THE SITE.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS AND PAVED PATHWAYS CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, PROVIDING NECESSARY DUST CONTROL WHERE REQUIRED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH THE OWNER'S REPRESENTATIVE.
9. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST ADOPTED EDITIONS OF THE INTERNATIONAL BUILDING CODE AND ALL OTHER LOCAL AND STATE CODES AND ORDINANCES AND REGULATIONS.

PLANTING NOTES:

1. LAYOUT ALL PLANT MATERIAL WITHIN A DEFINED AREA AT THE SAME TIME, PRIOR TO PLANTING, FOR LAYOUT AND ADJUSTMENT.
2. AFTER REMOVING EXISTING PLANT MATERIALS, FINE GRADE ALL AREAS SMOOTH INSURING POSITIVE DRAINAGE.
3. REMOVE PLANTS FROM CONTAINERS, GENTLY LOOSEN ROOT BALL, AND SOAK ROOT BALL IN WATER FOR A MINIMUM OF 5 MINUTES BEFORE PLANTING.
4. SET TOP OF ROOT BALLS 1" HIGHER THAN ADJACENT GRADES. FORM SAUCER WITH COMPOST.
5. PLANT MATERIAL SHALL CONFORM TO ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK" (AAN). ALL TREES SHALL BE B&B OR CONTAINER STOCK UNLESS NOTED OTHERWISE.
6. KEEP AREA AROUND NEWLY PLANTED SHRUBS FREE FROM WEEDS AS REQUIRED FOR ESTABLISHMENT.
7. NO PLANTING WITH IN DRIPLINE OF EXISTING TREES.
8. ALL TREES, SHRUBS, AND GROUND COVERS ARE NATIVE PLANTS FROM THE PORTLAND PLANT LIST.
9. SEE CIVIL PLANS FOR POND DETAILS.
10. SEE CIVIL PLANS FOR WATER QUALITY DETAILS.

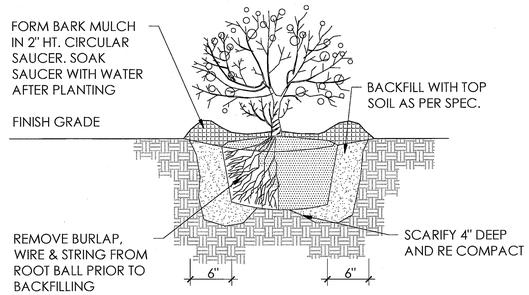
MITIGATION NOTES:

1. SEE DEMOLITION PLAN FOR MITIGATION AREA PREPARATION.
2. MITIGATION SHALL CONSIST OF REMOVAL OF REED CANARY GRASS, HIMALAYAN BLACKBERRY & OTHER NON-NATIVE SPECIES THROUGHOUT THE REMAINING WRA. AN APPROVED HERBICIDE SHALL BE USED PRIOR TO GRUBBING OUT ROOT MATERIAL. PROVIDED FOLLOW UP SPOT APPLICATIONS AS NECESSARY.
3. 80% SUCCESS IS REQUIRED FOR ALL MITIGATION AREAS.
4. SPACE TREES AT 8'-0" MIN. - 12'-0" MAX. O.C.
5. SHRUBS SHALL BE PLANTED BETWEEN 4'-0" AND 5'-0" O.C., OR CLUSTERED IN SINGLE SPECIES GROUPS OF NO MORE THAN 4 PLANTS, SPACE EACH CLUSTER 8'-0" - 10'-0" O.C.

PLANT ESTABLISHMENT WATERING NOTES:

1. GENERAL: PLANT MATERIALS HAVE BEEN SPECIFIED THAT ARE EASILY ESTABLISHED AND REQUIRE NO SUPPLEMENTAL WATER ONCE ESTABLISHED. COMPOST INCLUDED IN BACK FILL AND AS TOP DRESS WILL CONTRIBUTE TO WATER CONSERVATION. SOAKING ROOT BALL PRIOR TO PLANTING WILL HELP WITH PLANT ESTABLISHMENT.
2. CONTRACTOR SHALL PROVIDE NEW PLANT MATERIALS WITH WEEKLY WATERING DURING PERIODS OF DRY WEATHER ESPECIALLY DURING THE MONTHS OF JUNE, JULY, AUGUST AND SEPTEMBER.
3. CONTRACTOR SHALL APPLY WEEKLY A MINIMUM OF 5 GALLONS OF WATER PER SHRUB, 15 GALLONS PER TREE AND 2 GALLONS FOR GROUNDCOVER.
4. CONTRACTOR SHALL EMPLOY A WATERING SYSTEM SUCH AS WATERING BAGS AS PROVIDED BY TREEGATOR® OR BY ADDING TIMED RELEASED WATER. APPLY ONE WATERING BAG PER TREE AND SHRUB OR TWO COLUMNS OF TIMED RELEASE WATER.
5. SUPPLEMENTAL WATERING IS ONLY REQUIRED UNTIL THE PLANTINGS ARE ESTABLISHED, APPROXIMATELY TWO YEARS.

NOTE:
LOCATE TOP OF ROOT BALL A MINIMUM OF 1" ABOVE ADJACENT FINISH GRADE.



1 DECIDUOUS & CONIFER TREE & SHRUB PLANTING DETAIL

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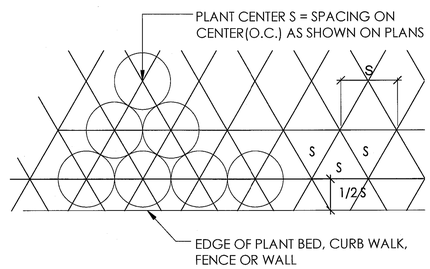

2 GROUNDCOVER PLANTING DETAIL

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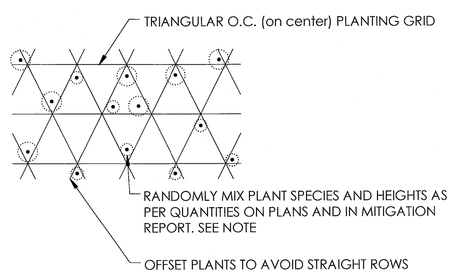

3 RANDOM SPACING PLANTING DETAIL

N.T.S.

PLANT SCHEDULE

TREES	CODE	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	AM	Acer macrophyllum / Big Leaf Maple	.5" cal.	41	.5 cal is measured 6" above ground level
	AR	Alnus rubra / Red Alder	.5" cal.	36	.5 cal is measured 6" above ground level
	FL	Fraxinus latifolia / Oregon Ash	.5" cal.	32	.5 cal is measured 6" above ground level
	PD	Pseudotsuga menziesii / Douglas Fir	.5" cal.	44	.5 cal is measured 6" above ground level
	RP2	Rhamnus purshiana / Cascara	1 gal	6	

SHRUBS	CODE	BOTANICAL NAME / COMMON NAME	SIZE	SPACING	QTY	REMARKS
	AA	Amelanchier alnifolia / Serviceberry	1 gal	48" o.c.	94	12" tall min.
	CS	Cornus sericea / Red Twig Dogwood	1 gal	60" o.c.	65	
	CK3	Cornus sericea `Kelsey` / Kelsey Dogwood	1 gal	30" o.c.	42	
	GS	Gaultheria shallon / Salal	1 gal	48" o.c.	192	
	MA2	Mahonia aquifolium / Oregon Grape	1 gal	36" o.c.	256	12" tall min.
	PW2	Philadelphus lewisii / Wild Mockorange	1 gal	72" o.c.	19	
	PM2	Polystichum munitum / Western Sword Fern	1 gal	48" o.c.	205	
	RS	Ribes sanguineum / Red Flowering Currant	1 gal	36" o.c.	180	12" tall min.
	SV	Spiraea betulifolia lucida / Shiny Leaf Spirea	1 gal	36" o.c.	116	
	SD2	Spiraea douglasii / Western Spirea	1 gal	60" o.c.	62	
	SA	Symphoricarpos albus / Common White Snowberry	1 gal	36" o.c.	222	12" tall min.
	VO	Vaccinium ovatum / Evergreen Huckleberry	1 gal	48" o.c.	129	

GROUND COVERS	CODE	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY
	AU	Arctostaphylos uva-ursi / Kinnikinnick	1 gal	24" o.c.	137
	CD2	Carex densa / Dense Sedge	1 gal	18" o.c.	43
	CO2	Carex obnupta / Slough Sedge	1 gal	15" o.c.	857
	DT	Deschampsia cespitosa / Tufted Hair Grass	1 gal	18" o.c.	46
	FV	Fragaria virginiana / Virginia Strawberry	1 gal	18" o.c.	420
	JP	Juncus patens / California Gray Rush	1 gal	18" o.c.	39
	LB2	Liriope muscari `Big Blue` / Big Blue Lilyturf	1 gal	18" o.c.	114
	MN	Mahonia nervosa / Cascade Oregon Grape	1 gal	24" o.c.	114

NATIVE SEED MIX		9,960 sf
Achillea millefolium / Common Yarrow		5% - seed
Bromus carinatus / California Brome-Grass 10 lbs. pls		55% - seed
Elymus glaucus / Blue Wildrye 10 lbs. pls		25% - seed
Lupinus rivularis / Riverbank Lupine		15% - seed
HILLSIDE STABLIZATION SEED MIX		40,688 sf
Dactylis glomerata / Orchard Grass		33% - seed
Lolium multiflorum / Annual Ryegrass		33% - seed
Lolium perenne / Perennial Ryegrass		34% - seed
MITIGATION SEED MIX		15,554 sf
Bromus carinatus / California Brome-Grass 10 lbs pls		50% - seed
Elymus glaucus / Blue Wildrye 10 lbs pls		50% - seed

BUILDING PERMIT SET: APRIL 3, 2017

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REGISTERED 396 Marianne H. Zarkin OREGON 5/8/98 LANDSCAPE ARCHITECT

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SHEET:
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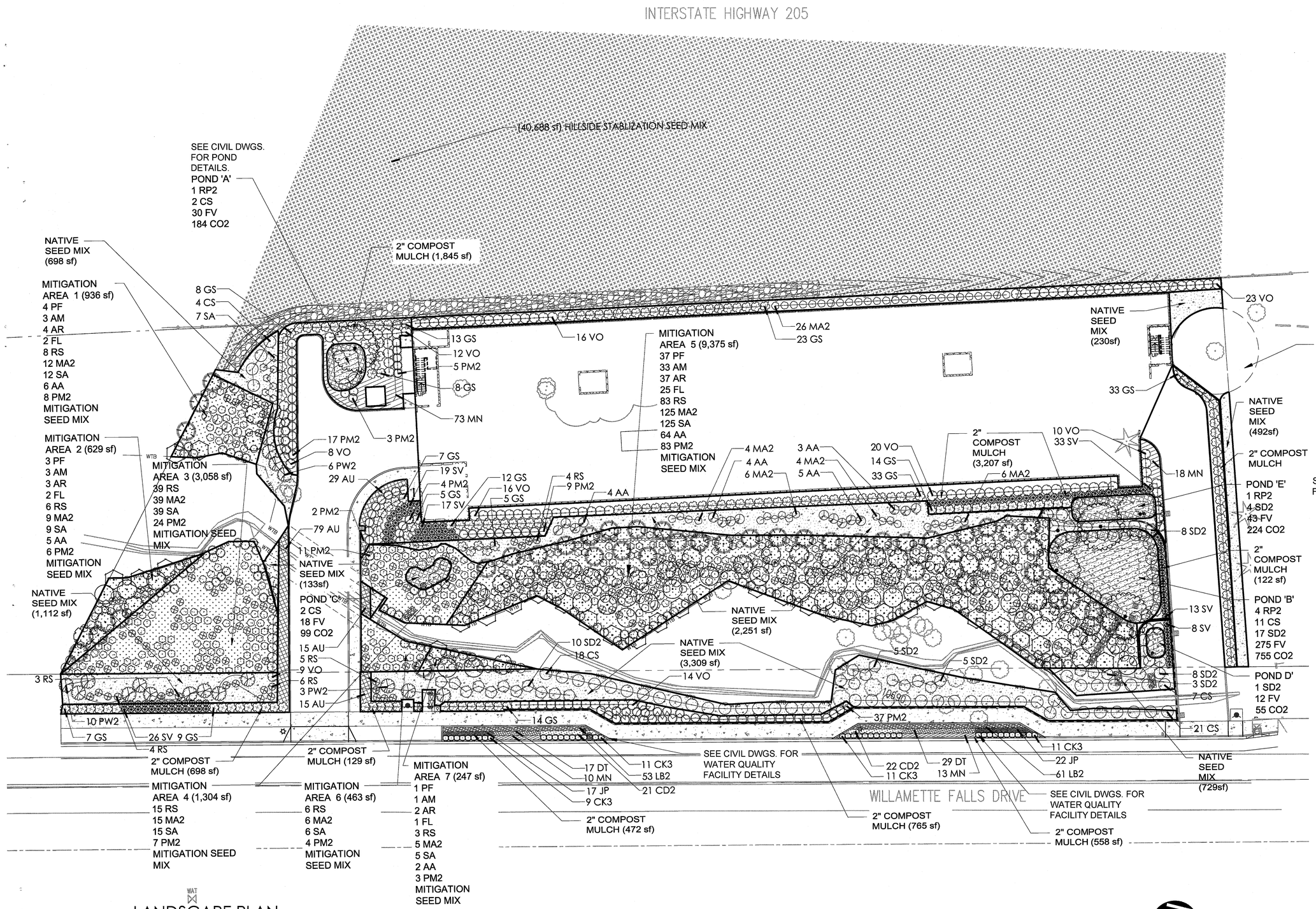

1 LANDSCAPE PLAN

20 0 20 40 60

Scale 1" = 20 -0"

NORTH

BUILDING PERMIT SET: APRIL 3, 2017

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