MEEK STREET PIPE INSTALLATION

ENGINEERING CONSTRUCTION PLANS

NORTH PHASE

VICINITY MAP

1" = 600'

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L100.1	BALFOUR WATER QUALITY FACILITY LANDSCAPE PLAN (CONT'D)
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PROJECT CONTACTS

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SANITARY/STORMWATER
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COMMUNICATIONS
ELECTRIC LIGHTWAVE
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COMMUNICATIONS
QWEST COMMUNICATIONS
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COMCAST
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Know what's **below.**
Call before you dig.

ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS BUT NOT MORE THAN TEN BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION
MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

COVER SHEET WITH VICINITY MAP

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED

DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN

RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C000

AKS DRAWING FILE: 5122 C000 COVER.DWG | LAYOUT: COVER

GENERAL NOTES

1. PLANS UTILIZE THE CITY OF MILWAUKIE PUBLIC WORKS STANDARDS, CITY OF MILWAUKIE SUPPLEMENTAL STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2021 EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, EXCEPT AS MODIFIED BY SPECIAL PROVISIONS PREPARED FOR THIS PROJECT.
2. PROPERTY AND RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE. THESE PLANS ARE NOT MEANT TO SERVE PROPERTY BOUNDARY SURVEY PURPOSES.
3. THE LOCATIONS, DEPTHS, AND DESCRIPTIONS OF EXISTING UTILITIES SHOWN ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEYS. THE ENGINEER, CITY AND UTILITY COMPANIES DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF SUCH RECORDS. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA.
4. ALL PIPE LENGTHS SHOWN ARE HORIZONTAL DISTANCES AND SHALL BE CONSIDERED APPROXIMATE. FINAL LENGTHS ARE DETERMINED BY FIELD CONDITIONS.
5. TRACER WIRE TO BE INSTALLED ON ALL PUBLIC OWNED PLASTIC PIPES PER OSD RD 300 AND RD 336. TRACER WIRE SHALL BE CONNECTED WITH TRACER WIRE CONNECTORS WITH 90-DEGREE TWIST LOCK DESIGN IN BLUE COLOR
6. MARKING TAPE SHALL BE INSTALLED 12 INCHES OVER ALL UTILITY LINES INCLUDING SERVICE LINES.

SANITARY SEWER AND STORMWATER NOTES

1. MANHOLES SHALL BE PRECAST CONCRETE SECTIONS WITH MINIMUM INSIDE DIAMETER OF 48-INCHES. CONFORMING TO THE REQUIREMENTS OF ASTM C-478, EXCEPT AS NOTED ON THE PLANS.

WATER NOTES

1. OPERATION OF ALL EXISTING VALVES TO ISOLATE WATERLINES FOR THE REQUIRED WORK SHALL BE CONDUCTED BY CITY OF MILWAUKIE EMPLOYEES ONLY.
2. CONTRACTOR SHALL REQUEST WATER SYSTEM SHUT DOWN AND NOTIFY IMPACTED CUSTOMERS PER OSSC 1140.47.
3. CONTRACTOR TO FURNISH AND INSTALL ALL FITTINGS, METER BOX, AND LID PER CITY OF MILWAUKIE STANDARDS. WATER METERS TO BE FURNISHED AND INSTALLED BY CITY, UNLESS OTHERWISE INDICATED ON PLANS.
4. RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINT CONNECTIONS. MEGALUG RETAINER GLANDS SHALL BE USED FOR DUCTILE IRON PIPE CONNECTIONS. GRIPPING RETAINER GLANDS SHALL BE USED FOR CAST IRON AND PVC PIPE CONNECTIONS.
5. THRUST BLOCKS SHALL NOT BE USED ON TEES, BENDS OR BLOW-OFFS, UNLESS OTHERWISE INDICATED ON PLANS,
6. ALL RESTRAINT FITTINGS SHALL BE INSTALLED WITH MANUFACTURER SPECIFIED TORQUE. CONTRACTOR IS RESPONSIBLE FOR HAVING A FUNCTIONAL TORQUE WRENCH ON-SITE.
7. CITY WATER CREWS HAVE THE RIGHT TO REMOVE OR KEEP ANY OR ALL OLD WATER INFRASTRUCTURE THAT IS EXPOSED BY CONTRACTOR.
8. DUE TO THE AGE OF THE EXISTING WATERLINES AND VALVES, LEAKAGE OF EXISTING FACILITIES MAY OCCUR DURING CONSTRUCTION OF TIE-INS. CONTRACTOR SHALL HAVE ON-SITE PUMPS ADEQUATE TO KEEP TRENCHES DE-WATERED AND WILL FOLLOW ALL CITY STORMWATER REQUIREMENTS FOR DEWATERING.
9. "STICK BY STICK" CONSTRUCTION MAY BE REQUIRED IN AREAS WHERE PROPOSED WATERLINE IS CLOSE TO EXISTING WATER MAIN. IF TRENCH OF THE EXISTING WATERLINE IS FALLING INTO THE NEW CONSTRUCTION TRENCH, OR IF THE EXISTING WATERLINE IS EXPOSED, "STICK BY STICK" CONSTRUCTION WILL BE REQUIRED.
10. CITY MUST PRE-APPROVE ANY SUB-CONTRACTOR DIRECT TAPPING LIVE CITY WATER MAINS.
11. IF CONNECTING TO CITY FIRE HYDRANT FOR TEMPORARY WATER, CONTRACTOR TO RENT HYDRANT METER THROUGH THE CITY. CITY PUBLIC WORKS WILL INSTRUCT CONTRACTOR ON USE. CONTRACTOR TO PROVIDE DEPOSIT AND COMPLETED HYDRANT METER APPLICATION TO CITY BUILDING DEPARTMENT AND PICK UP HYDRANT METER FROM THE JOHNSON CREEK BLVD. OFFICE BUILDING.
12. THE CONTRACTOR MUST MAINTAIN PIPE PLUGS IN NEW WATER MAIN DURING MAINLINE CONSTRUCTION.
13. ANY LEADED FITTINGS OR SERVICE LINES EXPOSED DURING WORK THAT WERE NOT PREVIOUSLY IDENTIFIED FOR REPLACEMENT NEED TO BE COMMUNICATED TO THE PROJECT MANAGER IMMEDIATELY.
14. WHEN A CORROSIVE POTENTIAL CONDITION IS ENCOUNTERED, ALL DUCTILE-IRON PIPE AND FITTINGS WILL BE POLYETHYLENE ENCASED WITH AN 8MIL TUBING MEETING MANUFACTURER AND AWWA STANDARDS. WHERE AN ACTIVE CATHODIC PROTECTION SYSTEM IS ENCOUNTERED AS A RESULT OF OTHER UTILITIES, A DEVIATION FROM NORMAL PIPE MATERIAL OR INSTALLATION MAY BE REQUIRED BY THE CITY ENGINEER.
15. FOR WATER SERVICE INSTALLATION, WHEN A CORROSIVE POTENTIAL CONDITION IS ENCOUNTERED AND THE COPPER SERVICE PASSES OVER OR UNDER AN ACTIVE CATHODIC PROTECTION SYSTEM, THE SERVICE SHALL BE INSTALLED IN A SCHEDULE 40 PVC CONDUIT FOR A DISTANCE OF TEN FEET ON EACH SIDE OF THE ACTIVE SYSTEM. ALL CONDUIT PLACEMENTS WILL BE AS-BUILT. PEX WATER SERVICE LINES ARE APPROVED TO BE USED IN AREAS WHERE COPPER SERVICE LINES FAIL PREMATURELY.

STREET NOTES

1. PAVING NOTES AND DETAILS WITHIN THESE PLANS ARE INTENDED FOR DRY WEATHER CONSTRUCTION.
2. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, MANHOLES AND WATER METER BOXES TO FINISHED STREET, DRIVEWAY, OR SIDEWALK GRADE.
3. THE CONTRACTOR SHALL SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING PAVEMENT AND NEW PAVEMENT. SAWCUT LINES SHOWN REPRESENT APPROXIMATE LOCATIONS. FINAL LOCATION SHALL BE APPROVED BY CITY. SEAL JOINTS WITH RUBBERIZED SEALANT IMMEDIATELY FOLLOWING PAVING.
4. CONTRACTOR SHALL PROOF-ROLL SUBGRADE, SUBBASE OR BASE WITH 10 CUBIC YARD TRUCK LOADED FOR CITY INSPECTION.

SIGNAGE AND MARKING NOTES

1. CONTRACTOR SHALL NOT REMOVE ANY STREET SIGNAGE NOT INDICATED IN THE PLANS WITHOUT PRIOR CITY APPROVAL.
2. CONTRACTOR SHALL REPLACE SIGNS, SIGN POLES, AND PAVEMENT MARKINGS DAMAGED DURING CONSTRUCTION. REPLACE SIGNAGE PER LATEST EDITION OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
3. CONTRACTOR SHALL RETURN ALL SIGNS/POLES/HARDWARE NOT BEING REINSTALLED TO THE CITY OF MILWAUKIE.
4. LOCATIONS ARE APPROXIMATE. FINAL LOCATION SHALL BE DETERMINED BY PROJECT MANAGER IN THE FIELD.
5. STRIPING AND MARKING SHOULD BE APPLIED A MINIMUM OF 14 DAYS AFTER TOP LIFT ASPHALT IS PLACED.

TEMPORARY TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL MEASURES SHALL CONFORM WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND LATEST EDITION OF THE OREGON TEMPORARY TRAFFIC CONTROL HANDBOOK (OTTCH).
2. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL TEMPORARY TRAFFIC CONTROL DEVICES THROUGHOUT THE DURATION OF CONSTRUCTION.
3. ALL TRAVEL LANES, STREETS, DRIVEWAYS, AND POINTS OF ACCESS SHALL BE OPENED TO VEHICULAR TRAFFIC AT THE END OF EACH WORKDAY.
4. CONTRACTOR WILL NOTIFY THE AFFECTED BUSINESS / PROPERTY OWNER OF DATE AND DURATION OF INTERRUPTION, 14 DAYS IN ADVANCE OF THE CLOSURE.
5. WORK AT SIGNALIZED INTERSECTIONS REQUIRES FLAGGERS TO BE STATIONED AT EACH LEG OF THE INTERSECTION AND THE TRAFFIC SIGNAL TURNED OFF. CONTACT CLACKAMAS COUNTY AT 503 650-3735 TO SCHEDULE SIGNAL SHUTDOWNS SIGNAL SHUTDOWNS MUST BE SCHEDULED 48-HOURS PRIOR TO SHUTDOWN.
6. ALL EXCAVATIONS WITHIN A PAVED STREET OPEN TO TRAFFIC SHALL BE TEMPORARILY RESURFACED OR PLATED AT THE END OF EACH WORKDAY AND PRIOR TO ALLOWING VEHICULAR TRAFFIC ONTO EXCAVATED AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING, MAINTAINING, AND REMOVING TEMPORARY SURFACING MATERIALS.

LEGEND

	EXISTING
DECIDUOUS TREE	
CONIFEROUS TREE	
FIRE HYDRANT	
WATER BLOWOFF	
WATER METER	
WATER VALVE	
DOUBLE CHECK VALVE	
AIR RELEASE VALVE	
SANITARY SEWER CLEAN OUT	
SANITARY SEWER MANHOLE	
SIGN	
STREET LIGHT	
MAILBOX	MB

	EXISTING	PROPOSED
STORM SEWER CLEAN OUT		
STORM SEWER CATCH BASIN		
STORM SEWER AREA DRAIN		
STORM SEWER MANHOLE		
SANITARY SEWER MANHOLE		
GAS METER		
GAS VALVE		
GUY WIRE ANCHOR		
POWER POLE		
POWER VAULT	P	
POWER JUNCTION BOX	A	
POWER PEDESTAL		
COMMUNICATIONS VAULT	C	
COMMUNICATIONS JUNCTION BOX		
COMMUNICATIONS RISER		

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE		
GRAVEL EDGE		
POWER LINE	PWR	PWR
OVERHEAD WIRE	OHW	OHW
COMMUNICATIONS LINE	COM	COM
FIBER OPTIC LINE	CFO	CFO
GAS LINE	GAS	GAS
STORM SEWER LINE	STM	STM
SANITARY SEWER LINE	SAN	SAN
WATER LINE	WAT	WAT

ABBREVIATIONS

AD: AREA DRAIN
CB: CATCH BASIN
DI: DITCH INLET
ESMT: EASEMENT
EX: EXISTING
MH: MANHOLE
SD: STORM DRAIN
SAN: SANITARY
SS: SANITARY SEWER
STM: STORM

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

GENERAL NOTES AND LEGEND

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

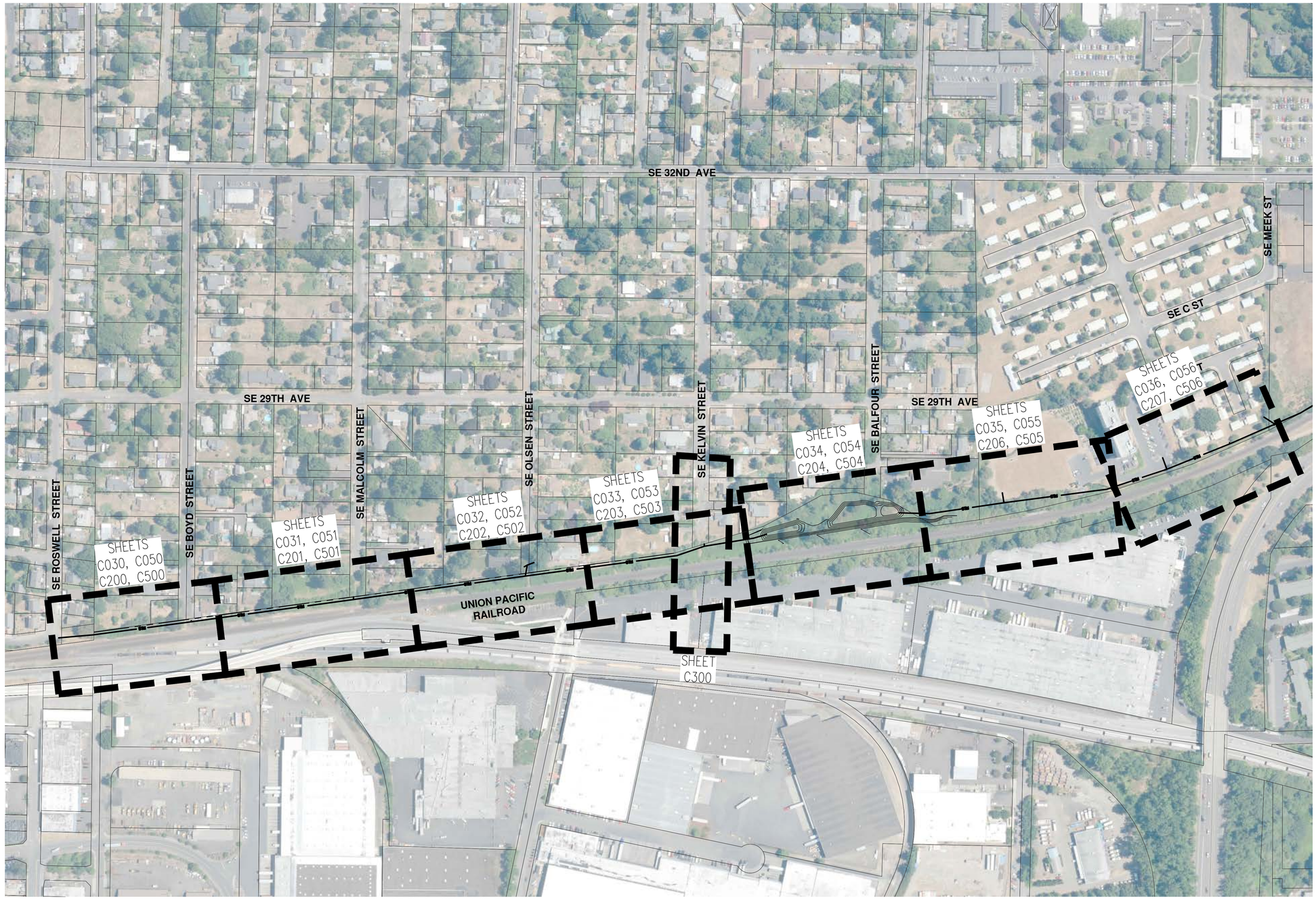
REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2006
JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C001

AKS DRAWING FILE: 5122 C000 COVER.DWG | LAYOUT: NOTES



N

SCALE: 1"=150 FEET

150 0 60 90 120 150

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON

CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

SITE MAP

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED

DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

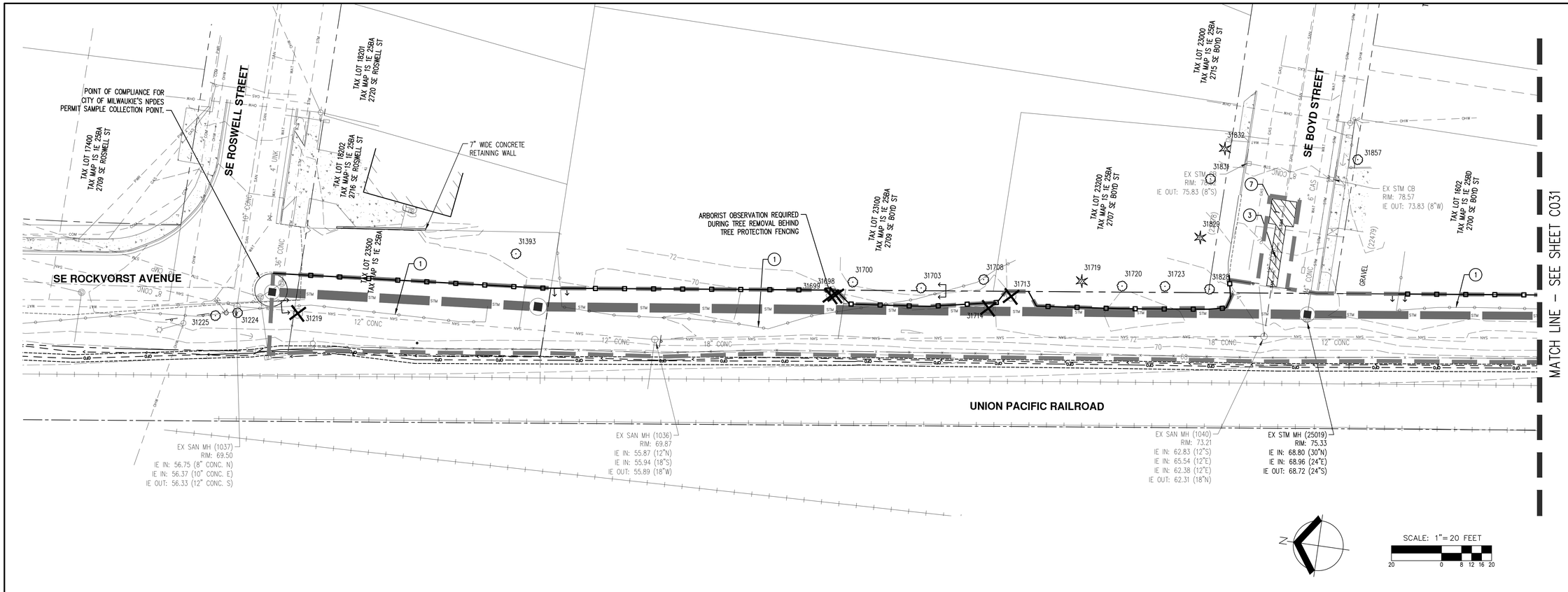
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C002

AKS DRAWING FILE: 5122 C002 SITE MAP.DWG | LAYOUT: LAYOUT1



GENERAL KEYED NOTES: (#)

1. REMOVE EXISTING FENCE. REPLACE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL. INSTALL TEMPORARY CONSTRUCTION FENCE AT CONSTRUCTION LIMITS WHERE FENCE IS REMOVED.
2. REMOVE EXISTING STORM MAIN AS REQUIRED FOR CONSTRUCTION OF NEW STORM MAIN. ABANDON REMAINING PORTIONS IN PLACE. SEE PLAN AND PROFILE SHEET FOR LIMITS OF REMOVAL.
3. REMOVE EXISTING SANITARY SEWER. SEE PLAN AND PROFILE SHEETS FOR REMOVAL LIMITS.
4. REMOVE EXISTING SIGN. SALVAGE FOR REINSTALL POST CONSTRUCTION.
5. REMOVE HEDGE TO CONSTRUCTION LIMITS.
6. ABANDON EXISTING STORM IN-PLACE. SEE PLAN AND PROFILE FOR LIMITS OF ABANDONMENT.
7. REMOVE EXISTING AC/PCC PAVEMENT.
8. REMOVE CURB.
9. EXISTING BUILDINGS (REMOVED BY OTHERS).
10. PROTECT CURB.

LEGEND

EXISTING GROUND CONTOUR (2 FT)	348
EXISTING GROUND CONTOUR (10 FT)	350
	CONIFEROUS / DECIDUOUS
TREE TO REMAIN	
TREE TO REMOVE	
FENCE REMOVAL LIMITS	
SEDIMENT FENCE (SEE ERC PLANS)	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
EXISTING STORM MAIN TO BE REMOVED	
EXISTING STORM MAIN TO BE ABANDONED IN-PLACE	
DISTURBED LIMITS	
TRENCH SAWCUT IN PAVEMENT	
AC/PCC PAVEMENT REMOVAL	

NOTES:

1. EROSION CONTROL MEASURES SHOWN FOR REFERENCE ONLY. SEE EROSION CONTROL PLANS FOR EROSION CONTROL MEASURES.
2. SEE SHEET C044 FOR TREE REMOVAL AND PROTECTION NOTES.
3. INVASIVE SPECIES SHALL BE REMOVED BY CONTRACTOR WITHIN THE DISTURBED LIMITS.

CERTIFIED ARBORIST ISA

BRUCE R. BALDWIN
CERTIFICATE NUMBER: PN-6666A
EXPIRATION DATE: 12/31/23

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

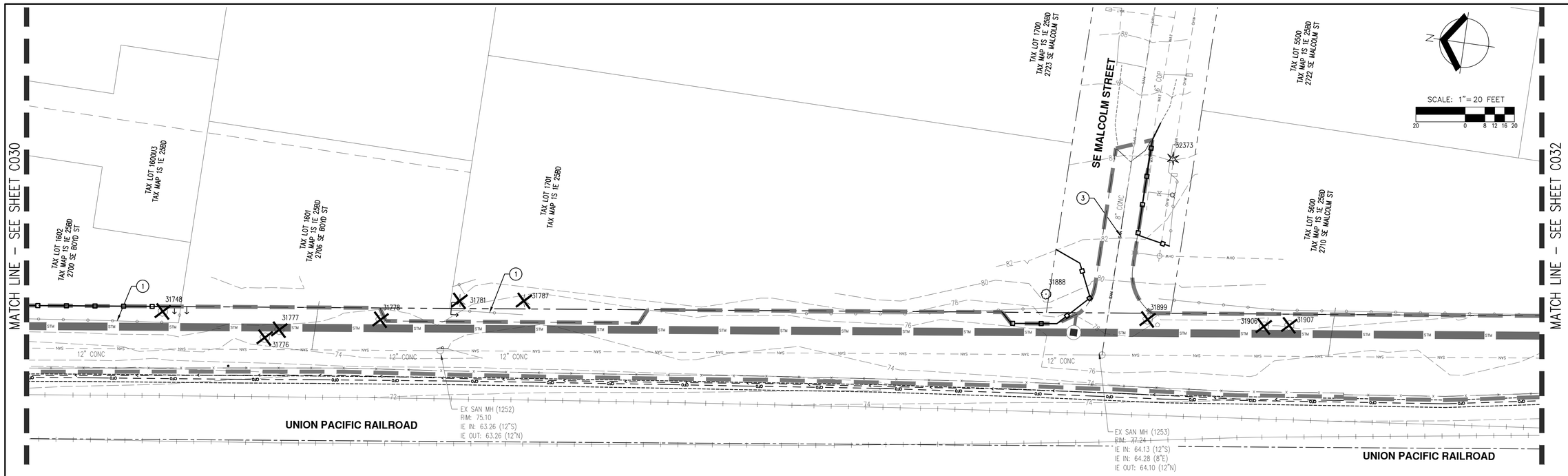
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C030

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C030



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NOTES:

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BRUCE R. BALDWIN
CERTIFICATE NUMBER: PN-6666A
EXPIRATION DATE: 12/31/23

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CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN

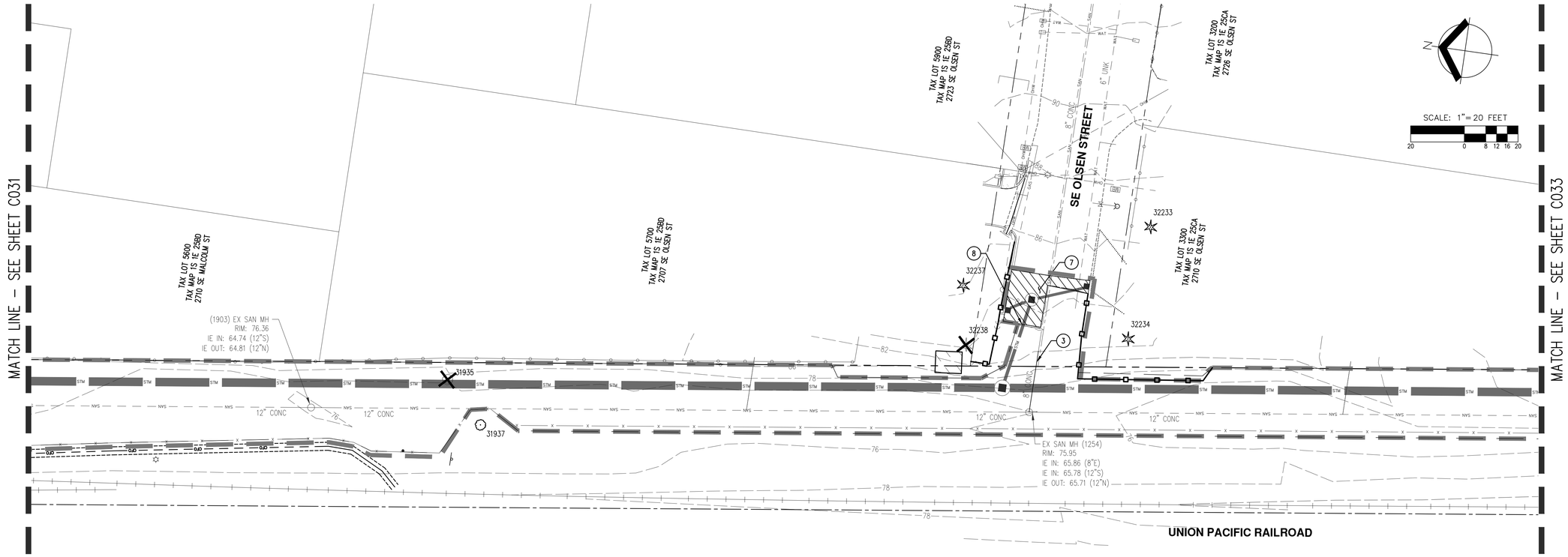
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C031

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C031



GENERAL KEYED NOTES: (#)

1. REMOVE EXISTING FENCE. REPLACE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL. INSTALL TEMPORARY CONSTRUCTION FENCE AT CONSTRUCTION LIMITS WHERE FENCE IS REMOVED.
2. REMOVE EXISTING STORM MAIN AS REQUIRED FOR CONSTRUCTION OF NEW STORM MAIN. ABANDON REMAINING PORTIONS IN PLACE. SEE PLAN AND PROFILE SHEET FOR LIMITS OF REMOVAL.
3. REMOVE EXISTING SANITARY SEWER. SEE PLAN AND PROFILE SHEETS FOR REMOVAL LIMITS.
4. REMOVE EXISTING SIGN. SALVAGE FOR REINSTALL POST CONSTRUCTION.
5. REMOVE HEDGE TO CONSTRUCTION LIMITS.
6. ABANDON EXISTING STORM IN-PLACE. SEE PLAN AND PROFILE FOR LIMITS OF ABANDONMENT.
7. REMOVE EXISTING AC/PCC PAVEMENT.
8. REMOVE CURB.
9. EXISTING BUILDINGS (REMOVED BY OTHERS).
10. PROTECT CURB.

LEGEND

EXISTING GROUND CONTOUR (2 FT)	348
EXISTING GROUND CONTOUR (10 FT)	350
	CONIFEROUS / DECIDUOUS
TREE TO REMAIN	
TREE TO REMOVE	
FENCE REMOVAL LIMITS	
SEDIMENT FENCE (SEE ERC PLANS)	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
EXISTING STORM MAIN TO BE REMOVED	
EXISTING STORM MAIN TO BE ABANDONED IN-PLACE	
DISTURBED LIMITS	
TRENCH SAWCUT IN PAVEMENT	
AC/PCC PAVEMENT REMOVAL	

NOTES:

1. EROSION CONTROL MEASURES SHOWN FOR REFERENCE ONLY. SEE EROSION CONTROL PLANS FOR EROSION CONTROL MEASURES.
2. SEE SHEET C044 FOR TREE REMOVAL AND PROTECTION NOTES.
3. INVASIVE SPECIES SHALL BE REMOVED BY CONTRACTOR WITHIN THE DISTURBED LIMITS.

CERTIFIED ARBORIST ISA

BRUCE R. BALDWIN
CERTIFICATE NUMBER: PN-6666A
EXPIRATION DATE: 12/31/23

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

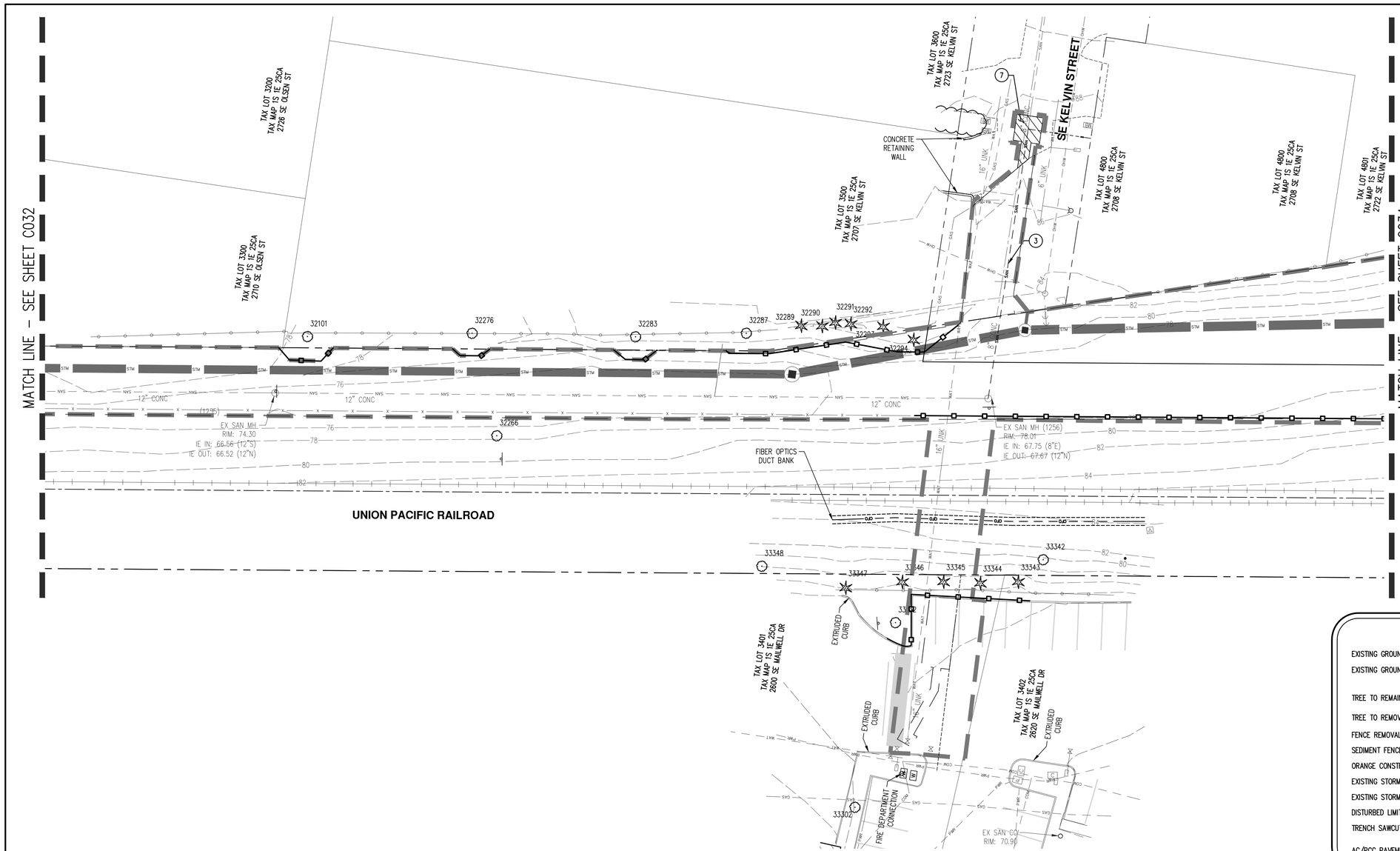
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C032

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C032



SCALE: 1"=20 FEET

GENERAL KEYED NOTES: (#)

1. REMOVE EXISTING FENCE. REPLACE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL. INSTALL TEMPORARY CONSTRUCTION FENCE AT CONSTRUCTION LIMITS WHERE FENCE IS REMOVED.
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8. REMOVE CURB.
9. EXISTING BUILDINGS (REMOVED BY OTHERS).
10. PROTECT CURB.

LEGEND

EXISTING GROUND CONTOUR (2 FT)	348
EXISTING GROUND CONTOUR (10 FT)	350
	CONIFEROUS / DECIDUOUS
TREE TO REMAIN	
TREE TO REMOVE	
FENCE REMOVAL LIMITS	
SEDIMENT FENCE (SEE ERC PLANS)	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
EXISTING STORM MAIN TO BE REMOVED	
EXISTING STORM MAIN TO BE ABANDONED IN-PLACE	
DISTURBED LIMITS	
TRENCH SAWCUT IN PAVEMENT	
AC/PCC PAVEMENT REMOVAL	

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DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2005 JOHN P. CHRISTIANSEN

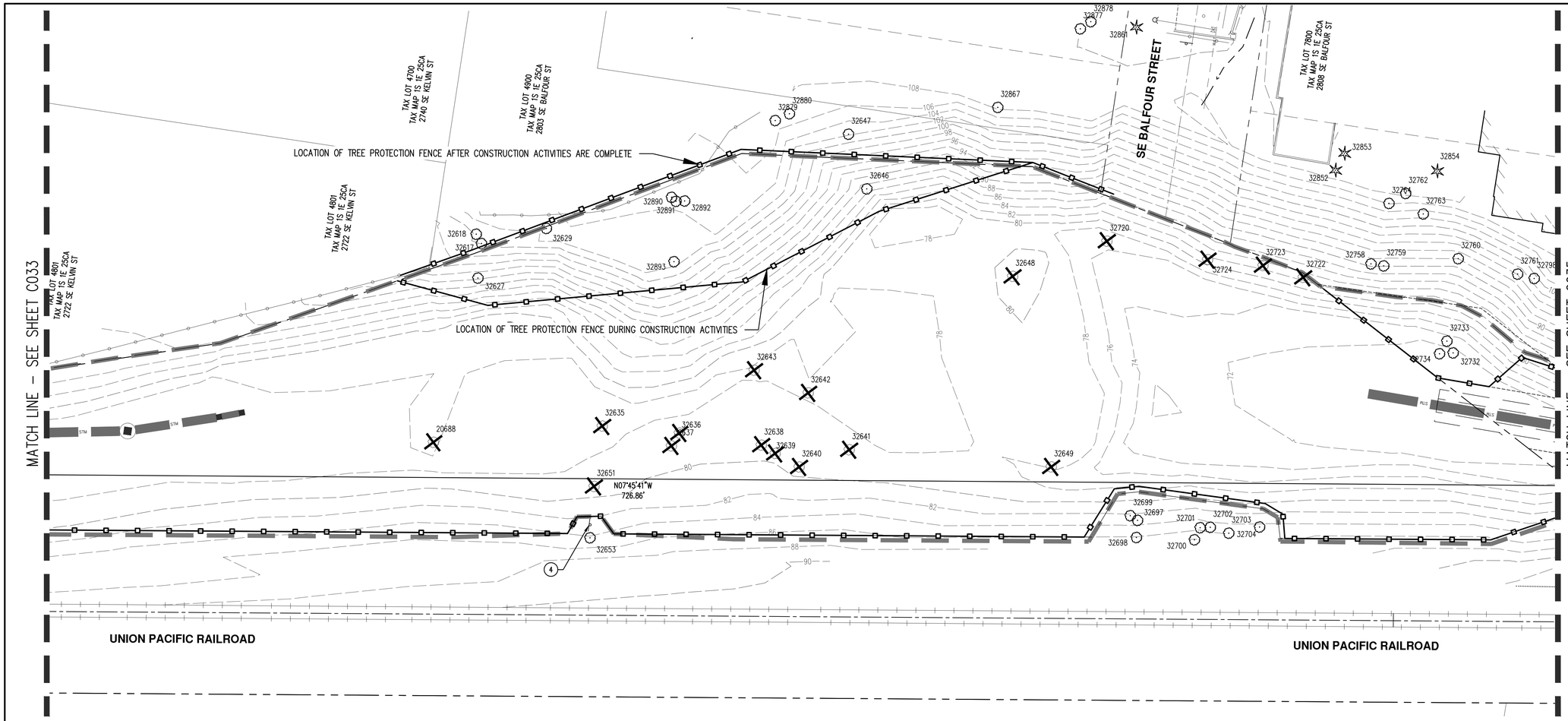
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C033

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C033



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LEGEND

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EXISTING GROUND CONTOUR (10 FT)	350
	CONIFEROUS / DECIDUOUS
TREE TO REMAIN	
TREE TO REMOVE	
FENCE REMOVAL LIMITS	
SEDIMENT FENCE (SEE ERC PLANS)	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
EXISTING STORM MAIN TO BE REMOVED	
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DISTURBED LIMITS	
TRENCH SAWCUT IN PAVEMENT	
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DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

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CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

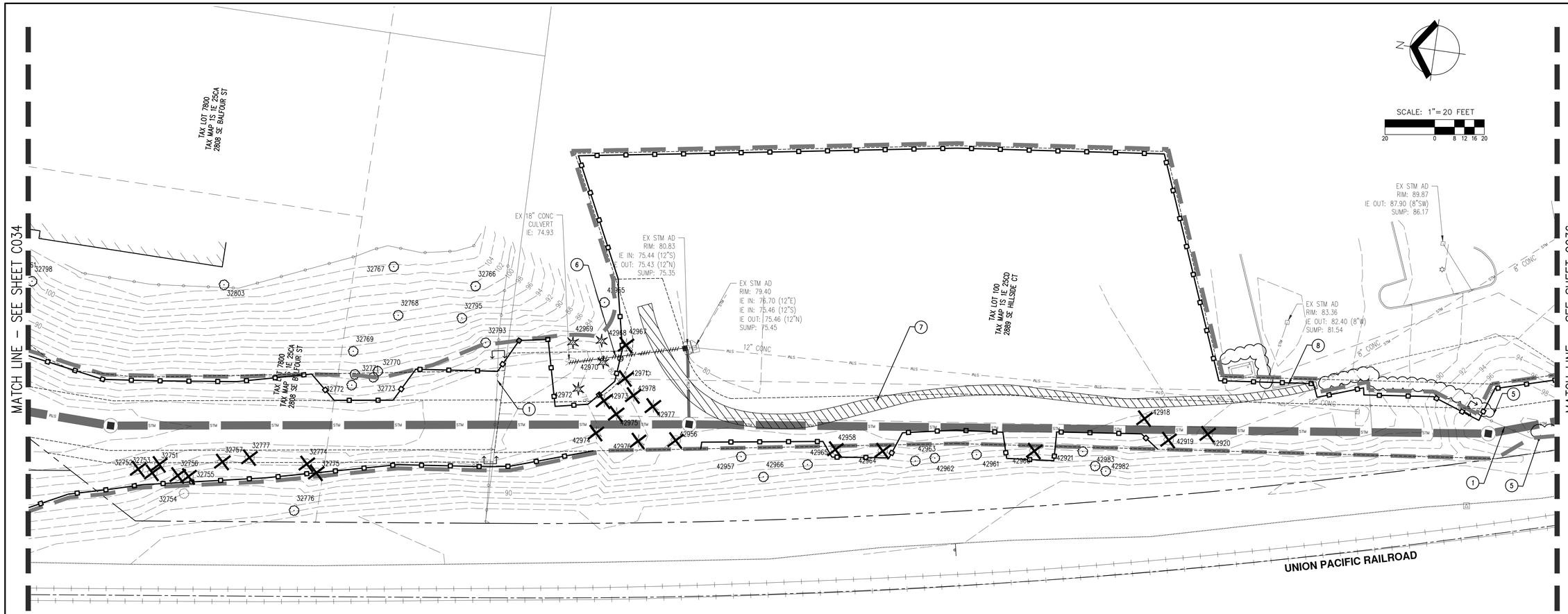
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C034

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C034



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EXISTING GROUND CONTOUR (10 FT)	350
	CONIFEROUS DECIDUOUS
TREE TO REMAIN	
TREE TO REMOVE	
FENCE REMOVAL LIMITS	
SEDIMENT FENCE (SEE ERC PLANS)	x x
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
EXISTING STORM MAIN TO BE REMOVED	
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DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

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CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

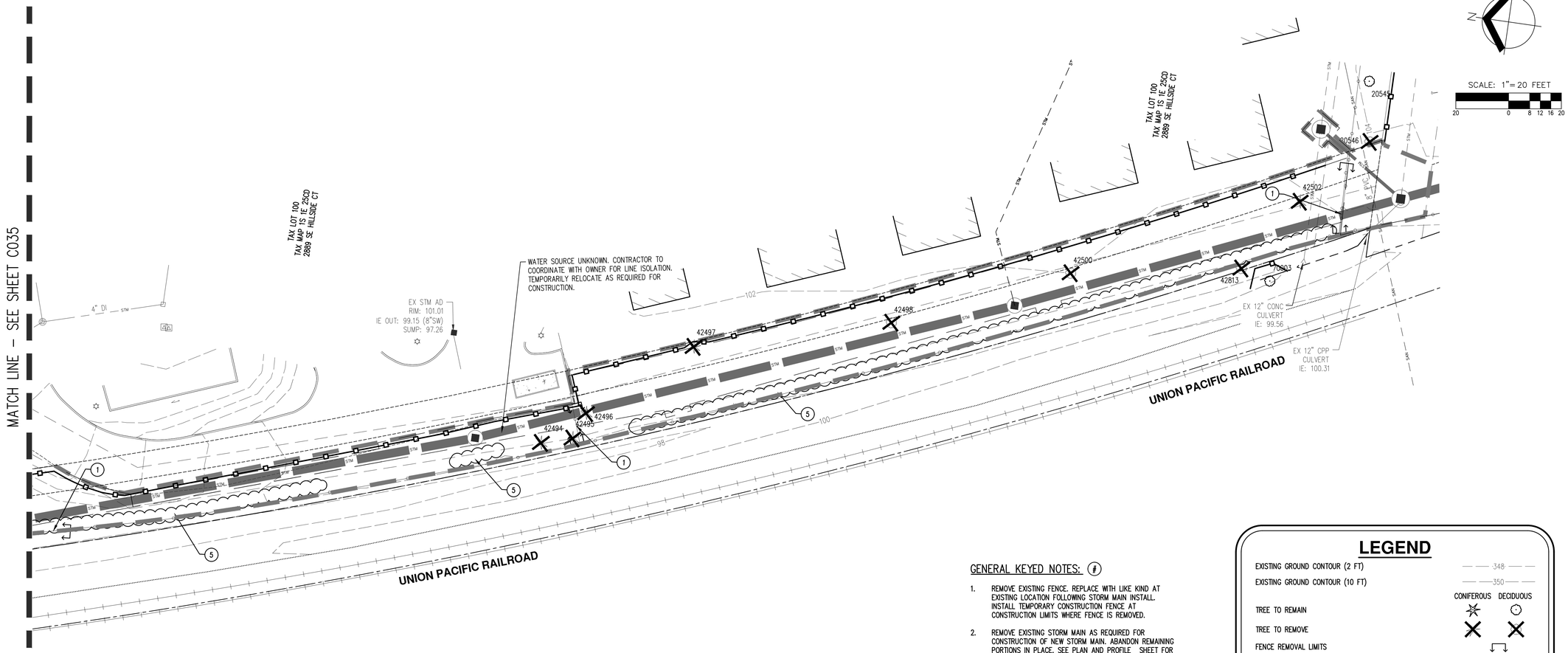
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C035

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C035



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EXISTING GROUND CONTOUR (10 FT)	350
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TREE TO REMAIN	
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DEMOLITION, TREE PRESERVATION AND REMOVAL PLANS

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DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C036

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C036

Detailed Tree Inventory for Meek Street Pipe Installation - North Phase

AKS Job No. 5122 - Evaluation Date: 1/25/2018

Tree #	DBH (in.)	Tree Species Common Name (*Scientific name*)	Comments	Health Rating*	Structure Rating**	Remove/Preserve
20545	6	Locust (*Gleditsia sp.*)		1	1	Preserve
20546	15	Locust (*Gleditsia sp.*)	Codominant	1	1	Remove
20688	14, 15, 15, 19, 20	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Remove
31219	13	Poplar (*Populus sp.*)	Only bottom 12 feet still alive, dead stems, peeling bark	3	3	Remove
31224	12	Poplar (*Populus sp.*)	Only base of tree still alive	3	3	Preserve
31225	7 8	Poplar (*Populus sp.*)	Peeling bark, several dead stems	2	2	Preserve
31393	16, 17, 21	Elm (*Ulmus sp.*)		1	1	Preserve
31698	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
31699	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
31700	9, 15, 16	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
31703	7, 9, 10, 10	Red Alder (*Alnus rubra*)	**OFFSITE**	1	1	Preserve
31708	7, 9	Oregon Ash (*Fraxinus latifolia*)	**OFFSITE**	1	1	Preserve
31713	10, 11, 12	Oregon Ash (*Fraxinus latifolia*)		1	1	Remove
31714	10	Oregon Ash (*Fraxinus latifolia*)		1	1	Remove
31719	20	Western Hemlock (*Tsuga heterophylla*)	**OFFSITE**	1	1	Preserve
31720	9	Holly (*Ilex sp.*)	**OFFSITE**	1	1	Preserve
31723	25	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
31748	6, 7, 7	Maple (*Acer sp.*)		1	1	Remove
31776	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
31777	9, 12, 13	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
31778	10, 13, 13, 21	Bigleaf Maple (*Acer macrophyllum*)	Scars, 10 inch and one 13 inch stem dead	2	2	Remove
31781	31	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**; Large scaffold branch with poor attachment	1	2	Remove
31787	45	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**; Codominant, broken top hanging in tree	1	2	Remove
31828	6, 9, 9	Apple (*Malus sp.*)	**OFFSITE**; Broken and dead branches, decay	2	2	Preserve
31829	20, 22	Alaska Yellow-cedar (*Cupressus nootkatensis*)	**OFFSITE**	1	1	Preserve
31831	10, 11, 12	Apple (*Malus sp.*)	Large cavity with decay	1	2	Preserve
31832	29	Ponderosa Pine (*Pinus ponderosa*)	**OFFSITE**; Codominant with included bark	1	2	Preserve
31857	8	Maple (*Acer sp.*)	**OFFSITE**	1	1	Preserve
31888	18	Cottonwood (*Populus sp.*)	**OFFSITE**; Codominant, bore holes	1	2	Preserve
31899	11, 19	Cherrry (*Prunus sp.*)	Codominant, peeling bark, dead branches	2	2	Remove
31906	44	Cottonwood (*Populus sp.*)	Codominant	1	1	Remove
31907	8	Cherrry (*Prunus sp.*)		1	1	Remove
31935	6, 7	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
31937	6	Locust (*Gleditsia sp.*)		1	1	Preserve
32101	8, 9	Oregon Ash (*Fraxinus latifolia*)	**OFFSITE**	1	1	Preserve
32233	48	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**; Poor attachment of top at old break	1	2	Preserve
32234	30	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**; Most foliage to the west, poor attachment of top at old break	1	2	Preserve
32237	31	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
32238	48	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Remove
32266	6, 6	European White Birch (*Betula pendula*)		1	1	Preserve
32276	8	Cottonwood (*Populus sp.*)	**OFFSITE**	1	1	Preserve
32283	7, 8	Hawthorn (*Crataegus sp.*)	**OFFSITE**	1	1	Preserve
32287	9	Hawthorn (*Crataegus sp.*)	**OFFSITE**	1	1	Preserve
32289	10	Cedar (*Cedrus sp.*)	**OFFSITE**	1	1	Preserve
32290	10	Cedar (*Cedrus sp.*)	**OFFSITE**	1	1	Preserve
32291	10	Cedar (*Cedrus sp.*)	**OFFSITE**	1	1	Preserve
32292	7	Cedar (*Cedrus sp.*)	**OFFSITE**	1	1	Preserve
32293	11	Cedar (*Cedrus sp.*)	**OFFSITE**	1	1	Preserve
32294	11	Cedar (*Cedrus sp.*)		1	1	Preserve
32373	34	Western Redcedar (*Thuja plicata*)	**OFFSITE**; Codominant	1	1	Preserve
32617	21	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32618	16	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32627	8	Cottonwood (*Populus sp.*)		1	1	Preserve
32629	7, 7, 7, 7	Holly (*Ilex sp.*)		1	1	Preserve
32635	7	Cottonwood (*Populus sp.*)		1	1	Remove
32636	36	Cottonwood (*Populus sp.*)		1	1	Remove
32637	32	Cottonwood (*Populus sp.*)		1	1	Remove
32638	32	Cottonwood (*Populus sp.*)		1	1	Remove
32639	32	Cottonwood (*Populus sp.*)		1	1	Remove
32640	31	Cottonwood (*Populus sp.*)	Most of bark has peeled off, one live branch	3	3	Remove
32641	7	Cottonwood (*Populus sp.*)		1	1	Remove
32642	6	Cottonwood (*Populus sp.*)		1	1	Remove
32643	15	Red Alder (*Alnus rubra*)		1	1	Remove
32646	6, 12, 13	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32647	6, 6, 8	Oak (*Quercus sp.*)	**OFFSITE**	1	1	Preserve
32648	12, 17	Locust (*Gleditsia sp.*)	Codominant	1	1	Remove
32649	6, 6, 8	Red Alder (*Alnus rubra*)	Codominant	1	1	Remove
32651	6	Cottonwood (*Populus sp.*)		1	1	Remove
32653	7	Cottonwood (*Populus sp.*)		1	1	Preserve
32697	8	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
32698	6, 11, 13, 13, 16	Bigleaf Maple (*Acer macrophyllum*)	Codominant, some dead branches	1	1	Preserve
32699	6, 6, 10	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
32700	6, 6, 7, 10	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
32701	7	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32702	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32703	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32704	6, 8	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
32720	6	Locust (*Gleditsia sp.*)		1	1	Remove
32722	8, 10, 10, 12	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32723	9, 10, 13	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32724	12, 24	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32732	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32733	7	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32734	9	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32751	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32752	20	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32753	19	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Remove
32754	15	Bigleaf Maple (*Acer macrophyllum*)	Codominant, broken top	1	2	Remove
32755	9	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32756	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32757	6, 8, 9, 10, 11, 11	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Remove
32758	19	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (W)	1	1	Preserve
32759	20	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (W)	1	1	Preserve
32760	28	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
32761	26	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32762	8, 22	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Codominant	1	1	Preserve
32763	25	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (W) over 45°, large vertical cracks in stem at base	1	3	Preserve
32764	26	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Codominant	1	1	Preserve
32766	6	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32767	10, 21	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32768	11, 12	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (W) over 45°	1	2	Preserve
32769	11	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
32770	7, 10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32771	6	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve

Detailed Tree Inventory for Meek Street Pipe Installation - North Phase

AKS Job No. 5122 - Evaluation Date: 1/25/2018

Tree #	DBH (in.)	Tree Species Common Name (*Scientific name*)	Comments	Health Rating*	Structure Rating**	Remove/Preserve
32772	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32773	10	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32774	8, 11, 11	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32775	27	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32776	8, 11	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32777	6	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
32793	11	Bigleaf Maple (*Acer macrophyllum*)	Dead	3	3	Preserve
32795	11, 11	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (W)	1	1	Preserve
32798	25	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (S) over 45°	1	2	Preserve
32803	13, 14	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
32852	7	Incense-cedar (*Calocedrus decurrens*)	**OFFSITE**	1	1	Preserve
32853	7	Incense-cedar (*Calocedrus decurrens*)	**OFFSITE**	1	1	Preserve
32854	30	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
32861	24	Western Redcedar (*Thuja plicata*)	**OFFSITE**; Large Scaffold branch	1	2	Preserve
32867	10	Cottonwood (*Populus sp.*)	**OFFSITE**	1	1	Preserve
32877	24	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Leans (NW)	1	1	Preserve
32878	22, 27, 30	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**; Codominant	1	1	Preserve
32879	6, 6	Oak (*Quercus sp.*)	**OFFSITE**	1	1	Preserve
32880	7	Oak (*Quercus sp.*)	**OFFSITE**; Top broken, dead branches	1	2	Preserve
32890	9, 12, 14	Oregon White Oak (*Quercus garryana*)		1	1	Preserve
32891	7	Oregon White Oak (*Quercus garryana*)		1	1	Preserve
32892	9	Oregon White Oak (*Quercus garryana*)		1	1	Preserve
32893	6	Cottonwood (*Populus sp.*)		1	1	Preserve
33132	14	Sycamore (*Platanus sp.*)	**OFFSITE**	1	1	Preserve
33302	6, 11	Deciduous	Not evaluated by an Arborist	-	-	Preserve
33342	14	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
33343	21	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
33344	19	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
33345	25	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
33346	23	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
33347	30	Douglas-fir (*Pseudotsuga menziesii*)	**OFFSITE**	1	1	Preserve
33348	11, 7, 11, 10, 11	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
42494	23	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42495	16	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Remove
42496	24	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Remove
42497	26, 48	Douglas-fir (*Pseudotsuga menziesii*)	Codominant	1	1	Remove
42498	14	Maple (*Acer sp.*)		1	1	Remove
42500	12	Maple (*Acer sp.*)		1	1	Remove
42502	27	Western Redcedar (*Thuja plicata*)		1	1	Remove
42813	6, 9, 14	Bigleaf Maple (*Acer macrophyllum*)	Peeling bark, decay, codominant, cracks	2	2	Remove
42918	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
42919	8	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
42920	32	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
42921	14	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
42955	9	Bigleaf Maple (*Acer macrophyllum*)	**OFFSITE**	1	1	Preserve
42956	9	Bigleaf Maple (*Acer macrophyllum*)		1	1	Remove
42957	16	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
42958	6	Oregon White Oak (*Quercus garryana*)		1	1	Remove
42960	19, 17, 19, 23, 14, 17	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Remove
42961	12	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
42962	15	Bigleaf Maple (*Acer macrophyllum*)	Codominant, Leans (W)	1	1	Preserve
42963	18, 16, 14	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
42964	22, 19	Bigleaf Maple (*Acer macrophyllum*)	Codominant, Leans (SE)	1	1	Remove
42965	9, 33	Bigleaf Maple (*Acer macrophyllum*)	Codominant, Some dead branches	1	2	Preserve
42966	23, 20, 19	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
42967	11	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42968	9	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Preserve
42969	9	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Preserve
42970	8	Lodgepole Pine (*Pinus contorta*)		1	1	Preserve
42971	6	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42972	9	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Preserve
42973	7	Lodgepole Pine (*Pinus contorta*)	Codominant	1	1	Remove
42974	6	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42975	8	Lodgepole Pine (*Pinus contorta*)	Leans (S) 45°	1	2	Remove
42976	8	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42977	10	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42978	8	Lodgepole Pine (*Pinus contorta*)		1	1	Remove
42982	21, 14, 9, 8	Bigleaf Maple (*Acer macrophyllum*)	Codominant	1	1	Preserve
42983	13	Bigleaf Maple (*Acer macrophyllum*)		1	1	Preserve
70003	6	European White Birch (*Betula pendula*)		1	1	Preserve

Total # of Existing Trees Inventoried = 174

Total # of Existing Onsite Trees to be Preserved= 51
Total # of Existing Onsite Trees to be Removed= 64

Total # of Existing Offsite Trees to be Preserved= 58
Total # of Existing Offsite Trees to be Removed= 3

***Health Rating:**

1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality.

2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment.

3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

****Structure Rating:**

1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system.

2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.

3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fall in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.

At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.

CERTIFIED ARBORIST ISA

BRUCE R. BALDWIN
CERTIFICATE NUMBER: PN-6660A
EXPIRATION DATE: 12/31/23

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

TREE PRESERVATION AND REMOVAL TABLE

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

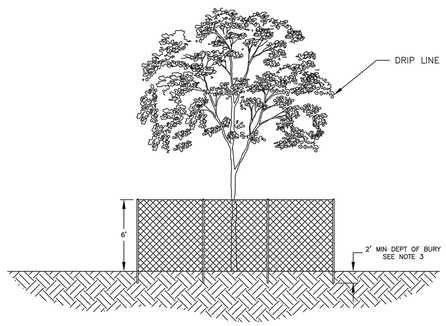
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C043

AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C043



NOTES

1. FENCE MUST BE 6 FEET IN HEIGHT AND SET AT THE TREE DRIP LINE.
2. FENCE MATERIALS TO CONSIST OF 2" MESH CHAIN LINKS SECURED TO A MINIMUM 1-1/2" DIA. STEEL OR ALUMINUM POST.
3. POST TO BE SET TO A DEPTH OF NO LESS THAN 2 FEET IN NATIVE SOIL.
4. TREE PROTECTION FENCING MUST BE INSTALLED, INSPECTED AND APPROVED BY THE CITY'S AUTHORIZED REPRESENTATIVE PRIOR TO ANY EROSION CONTROL FENCING BEING INSTALLED OR ANY GRADING ACTIVITIES OCCUR.
5. FENCE MUST REMAIN IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION ACTIVITIES. MOVEMENT OR REMOVAL OF FENCE REQUIRES APPROVAL BY CITY'S AUTHORIZED REPRESENTATIVE.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Tree Protection Fencing

DRAWING NO. 524

APPROVED: 01/2021
CITY ENGINEER DATE

NO.	REVISIONS	DATE	BY
1	NEW DRAWING	06/19	TAP

TREE PRESERVATION NOTES:

PLACING MATERIALS NEAR TREES:

1. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE TREE PROTECTION AREA OF ANY TREE DESIGNATED TO REMAIN, INCLUDING, BUT NOT LIMITED TO, PARKING EQUIPMENT, PLACING SOLVENTS, STORING BUILDING MATERIAL AND SOIL DEPOSITS, DUMPING CONCRETE WASHOUT.

ATTACHMENTS TO TREES:

1. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY OBJECT TO ANY TREE DESIGNATED FOR PROTECTION.

GRADING NEAR TREES:

1. THE GRADE SHALL NOT BE ELEVATED OR REDUCED WITHIN THE TREE PROTECTION AREA OF TREES TO BE PRESERVED WITHOUT THE PROJECT ARBORIST'S AUTHORIZATION. THE PROJECT ARBORIST MAY ALLOW COVERAGE OF UP TO ONE HALF OF THE AREA OF THE TREE'S ASSUMED ROOT ZONE WITH LIGHT SOILS (NO CLAY) TO THE MINIMUM DEPTH NECESSARY TO CARRY OUT GRADING OR LANDSCAPING PLANS, IF IT WILL NOT IMPERIL THE SURVIVAL OF THE TREE. AERATION DEVICES MAY BE REQUIRED TO ENSURE THE TREE'S SURVIVAL.
2. IF THE GRADE ADJACENT TO A PRESERVED TREE IS RAISED SUCH THAT IT COULD SLOUGH OR ERODE INTO THE TREE PROTECTION AREA, IT SHALL BE PERMANENTLY STABILIZED TO PREVENT SUFFOCATION OF THE ROOTS.
3. THE APPLICANT SHALL NOT INSTALL AN IMPERVIOUS SURFACE WITHIN THE TREE PROTECTION AREA WITHOUT THE AUTHORIZATION OF THE PROJECT ARBORIST. THE PROJECT ARBORIST MAY REQUIRE SPECIFIC CONSTRUCTION METHODS AND/OR USE OF AERATION DEVICES TO ENSURE THE TREE'S SURVIVAL AND TO MINIMIZE THE POTENTIAL FOR ROOT INDUCED DAMAGE TO THE IMPERVIOUS SURFACE.
4. TO THE GREATEST EXTENT PRACTICAL, UTILITY TRENCHES SHALL BE LOCATED OUTSIDE OF THE TREE PROTECTION AREA. THE PROJECT ARBORIST MAY REQUIRE THAT UTILITIES BE TUNNELED UNDER THE ROOTS OF TREES TO BE RETAINED IF THE PROJECT ARBORIST DETERMINES THAT TRENCHING WOULD SIGNIFICANTLY REDUCE THE CHANCES OF THE TREE'S SURVIVAL.
5. TREES AND OTHER VEGETATION TO BE RETAINED SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. CLEARING OPERATIONS SHALL BE CONDUCTED SO AS TO EXPOSE THE SMALLEST PRACTICAL AREA OF SOIL FOR THE LEAST POSSIBLE AMOUNT OF TIME. SHRUBS, GROUND COVER, AND STUMPS SHALL BE MAINTAINED TO CONTROL EROSION, WHERE FEASIBLE. WHERE NOT FEASIBLE, APPROPRIATE EROSION CONTROL PRACTICES SHALL BE IMPLEMENTED.

ADDITIONAL REQUIREMENTS:

1. THE PROJECT ARBORIST MAY REQUIRE ADDITIONAL TREE PROTECTION MEASURES WHICH ARE CONSISTENT WITH ACCEPTED URBAN FORESTRY PRACTICES.
2. AT THE COMPLETION OF CONSTRUCTION, ALL TREES SHOULD ONCE AGAIN BE REVIEWED. LAND CLEARING AND REMOVAL OF ADJACENT TREES CAN EXPOSE PREVIOUSLY UNSEEN DEFECTS AND OTHERWISE HEALTHY TREES CAN BE DAMAGED DURING CONSTRUCTION. AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHOULD COORDINATE WITH THE PROJECT ARBORIST FOR A FINAL INSPECTION.

EXCAVATION WITHIN ASSUMED TREE ROOT ZONES:

1. EXCAVATION IN THE TOP 24 INCHES OF SOIL IN THE ASSUMED TREE ROOT ZONE SHOULD BEGIN AT THE EXCAVATION LINE THAT IS CLOSEST TO THE TREE.
2. THE EXCAVATION SHOULD BE DONE BY HAND/SHOVEL OR WITH AN EXCAVATOR AND A PERSON WITH A SHOVEL, PRUNING SHEARS, AND A PRUNING SAW.
3. IF DONE BY HAND, ALL ROOTS 1-INCH DIAMETER OR LARGER SHOULD BE PRUNED AT THE EXCAVATION LINE.
4. IF DONE WITH AN EXCAVATOR (MOST LIKELY SCENARIO), THEN THE OPERATOR SHALL START THE CUT AT THE EXCAVATION LINE AND CAREFULLY "FEEL" FOR ROOTS/RESISTANCE. WHEN THERE IS RESISTANCE, THE PERSON WITH THE SHOVEL HAND DIGS AROUND THE ROOTS AND PRUNES THE ROOTS 1-INCH DIAMETER OR LARGER.
5. THE EXCAVATOR IS TO REMAIN OFF OF THE TREE ROOTS TO BE PRESERVED AT ALL TIMES.
6. ALL ROOTS SHALL BE CUT CLEANLY WITH PRUNING SHEARS OR A PRUNING SAW.
7. THE PROJECT ARBORIST MUST BE ON SITE DURING ANY WORK WITHIN THE TREE PROTECTION AREA.

PRUNING/TREE REMOVAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE CREW OF PERSONNEL, EQUIPMENT, AND MATERIALS TO SAFELY AND EFFICIENTLY COMPLETE THE ASSIGNED WORK. EACH SUCH CREW SHALL INCLUDE AN INDIVIDUAL WHO SHALL BE DESIGNATED AS THE CREW SUPERVISOR, BE RESPONSIBLE FOR THE CREW'S ACTIVITIES, RECEIVE INSTRUCTION FROM THE OWNER OR THE OWNER'S REPRESENTATIVE, AND DIRECT THE CREW TO ACCOMPLISH SUCH WORK.
2. THE CONTRACTOR SHOULD PRUNE ANY DEAD LIMBS FROM ALL TREES TO BE PRESERVED ON-SITE.
3. WHENEVER A TREE, WHICH IS NOT SCHEDULED TO BE REMOVED, MUST BE TRIMMED OR PRUNED, THE CONTRACTOR SHALL ENSURE THAT SUCH TRIMMING AND PRUNING IS CARRIED OUT UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST. ALL PRUNING AND TRIMMING SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ANSI A300 "STANDARD PRACTICES FOR TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE".
4. UNLESS AS OTHERWISE DIRECTED BY THE OWNER, ROOT BALLS FROM TREES BEING REMOVED SHALL BE COMPLETELY REMOVED UNLESS THE ROOT REMOVAL CROSSES ONTO ADJACENT PROPERTIES OR WOULD COMPROMISE TREES BEING PRESERVED. IN THOSE CASES, THE STUMPS SHALL BE GROUND AS NECESSARY SO AS NOT TO CAUSE DAMAGE TO THE ROOT ZONES OF ADJACENT TREES TO BE PRESERVED ON THE SUBJECT PARCEL OR ABUTTING PARCELS. STUMPS NEAR PROPERTY LINES SHALL ALSO BE GROUND AS NECESSARY SO AS NOT TO CAUSE DISTURBANCE TO ADJACENT PARCELS.
5. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST GOVERNMENTAL SAFETY REGULATIONS. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ANSI Z133.1 "PRUNING, TRIMMING, REPAIRING, MAINTAINING AND REMOVING TREES AND CUTTING BRUSH-SAFETY REQUIREMENTS" WITH SPECIAL EMPHASIS GIVEN TO THE REQUIREMENT THAT ONLY QUALIFIED LINE-CLEARANCE TREE TRIMMERS BE ASSIGNED TO WORK WHERE A POTENTIAL ELECTRICAL HAZARD EXISTS.
6. THE CONTRACTOR SHALL MAKE ALL THE NECESSARY ARRANGEMENTS WITH ANY UTILITY THAT MUST BE PROTECTED OR RELOCATED IN ORDER TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF THE OPERATING CONDITION OF ALL ACTIVE UTILITIES WITHIN THE AREA OF CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UTILITIES.
7. ANY MATERIAL RESULTING FROM THE TRIMMING OR REMOVAL OF ANY TREES SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF.
8. HAZARDOUS TREE REPORTING: ANY PERSON ENGAGED IN TRIMMING OR PRUNING WHO BECOMES AWARE OF A TREE OF DOUBTFUL STRENGTH, THAT COULD BE DANGEROUS TO PERSONS AND PROPERTY, SHALL REPORT SUCH TREE(S) TO THE OWNER OR THE OWNER'S REPRESENTATIVE. SUCH TREES SHALL INCLUDE THOSE THAT ARE OVER MATURE, DISEASED, OR SHOWING SIGNS OF DECAY OR OTHER STRUCTURAL WEAKNESS.
9. TREES DETERMINED TO BE A HAZARD SHALL BE REMOVED AS SOON AS POSSIBLE.
10. DAMAGES: ANY DAMAGE CAUSED BY THE CONTRACTOR, INCLUDING, BUT NOT LIMITED TO, BROKEN SIDEWALK, CURB, RUTTED LAWN, BROKEN WATER SHUT-OFFS, WIRE DAMAGE, BUILDING DAMAGE, STREET DAMAGE, ETC., WILL BE REPAIRED OR REPLACED IN A TIMELY MANNER, TO THE OWNER'S SATISFACTION, AND ALL COSTS PAID BY THE CONTRACTOR.
11. ANY BRUSH CLEARING REQUIRED WITHIN THE TREE PROTECTION AREA SHALL BE ACCOMPLISHED WITH HAND OPERATED EQUIPMENT.
12. TREES TO BE REMOVED SHALL BE FELLED SO AS TO FALL AWAY FROM ASSUMED TREE ROOT ZONES AND TO AVOID PULLING AND BREAKING OF ROOTS TO REMAIN. DIRECTIONAL FELLING OF TREES SHALL BE USED TO AVOID DAMAGE TO TREES DESIGNATED FOR RETENTION.
13. ALL DOWNED BRUSH AND TREES SHALL BE REMOVED FROM THE TREE PROTECTION AREA EITHER BY HAND OR WITH EQUIPMENT STAGED OUTSIDE OF THE TREE PROTECTION AREA. EXTRACTION SHALL OCCUR BY LIFTING THE MATERIAL OUT, NOT BY SKIDDING IT ACROSS THE GROUND.
14. IF TEMPORARY HAUL OR ACCESS ROADS MUST PASS OVER TREE PROTECTION AREA, A ROADBED OF STEEL PLATES, OR 6 INCHES OF MULCH, OR 6 INCHES OF GRAVEL SHALL BE PLACED TO PREVENT SOIL COMPACTION IF DETERMINED NECESSARY BY THE PROJECT ARBORIST. THE ROADBED MATERIAL SHALL BE REPLENISHED AS NECESSARY TO MAINTAIN A 6-INCH DEPTH.
15. PRUNING: THE CONTRACTOR SHALL CONSULT WITH THE PROJECT ARBORIST PRIOR TO ANY PRUNING ACTIVITIES NECESSARY FOR CONSTRUCTION ACTIVITIES. ALL PRUNING ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH ANSI A300 PRUNING STANDARDS. PRUNING SHALL BE COMPLETED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
16. CUT BRANCHES AND ROOTS WITH SHARP PRUNING INSTRUMENTS THAT DO NOT CHOP OR TEAR.
17. FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO CLEARING, GRADING, EXCAVATION, OR DEMOLITION WORK, AND SHALL BE REMOVED ONLY AFTER THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPING AND IRRIGATION INSTALLATION.
18. TREE PROTECTION FENCING SHALL BE FLUSH WITH THE INITIAL UNDISTURBED GRADE.

CERTIFIED ARBORIST ISA

BRUCE R. BALDWIN
CERTIFICATE NUMBER: PN-6666A
EXPIRATION DATE: 12/31/23

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

TREE PRESERVATION AND REMOVAL NOTES

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

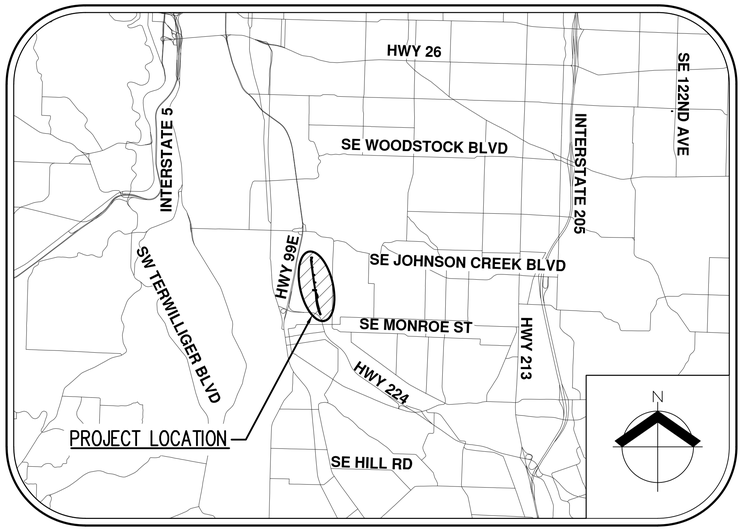
REVISIONS

JOB NUMBER 5122

SHEET C044

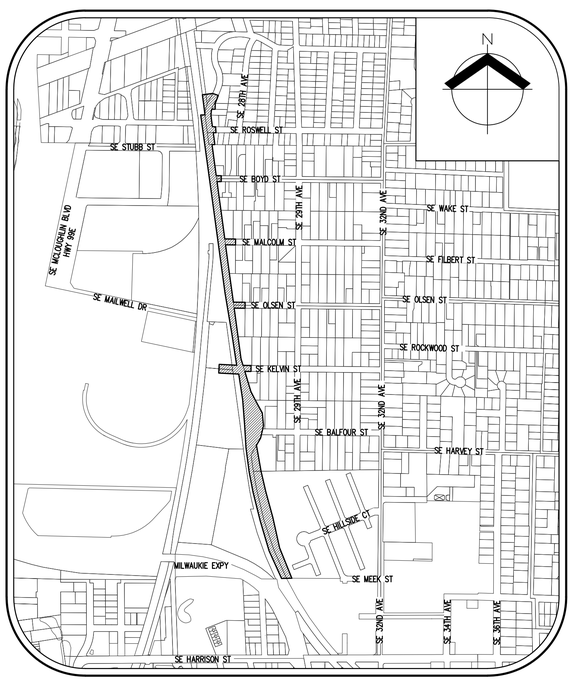
AKS DRAWING FILE: 5122 C030 DEMO & TREE PLANS.DWG | LAYOUT: C044

1200-CN EROSION AND SEDIMENT CONTROL PLANS



VICINITY MAP

SCALE: 1" = 5000'



SITE MAP

1" = 600'

CIVIL ENGINEERING FIRM

AKS ENGINEERING & FORESTRY, LLC
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APPLICANT

CITY OF MILWAUKIE
JENNIFER GARBELY, P.E.
ENGINEERING DEPARTMENT
6101 SE JOHNSON CREEK BLVD.
PH: (503) 786-7609
FAX: (503) 774-8236

811
Know what's **below.**
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NOTICE TO EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS BUT NOT MORE THAN TEN BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

SINGLE FAMILY & MULTI-FAMILY RESIDENCES, GRASSED FIELDS, UNION PACIFIC RAILROAD (UPRR) RIGHT-OF-WAY.

PROJECT LOCATION:

CITY OF MILWAUKIE, OREGON.

DEVELOPED CONDITIONS:

INSTALLATION OF ±3,850 LF OF STORM SEWER MAIN INCLUDING A DETENTION POND. PROPERTY ACQUISITION FROM UPRR TO CITY OF MILWAUKIE.

PROPERTY DESCRIPTION:

RAILROAD, PUBLIC RIGHTS-OF-WAY, AND TAX LOTS 1S 1E 36AB 3001 AND 3000, 1S 1E 25CB 100 AND 1S 1E 25BA 23500.

NATURE OF CONSTRUCTION ACTIVITY AND TIMETABLE FOR MAJOR ACTIVITIES:

STA 28+88.19 TO STA 38+44.27

- CLEARING (JANUARY 2024)
- GRADING [EXCAVATION AND FILL] (JANUARY 2024 – FEBRUARY 2024)
- INSTALLATION OF UTILITIES (JANUARY 2024 – MARCH 2024)
- FINAL STABILIZATION (MARCH 2024)
- FINAL PAVING (MARCH 2024)

STA 0+00.00 TO STA 28+88.19

- CLEARING (MAY 2024)
- GRADING [EXCAVATION AND FILL] (MAY 2024 – JULY 2024)
- INSTALLATION OF UTILITIES (JUNE 2024 – OCTOBER 2024)
- FINAL STABILIZATION (OCTOBER 2024)
- FINAL PAVING (OCTOBER 2024)

TOTAL DISTURBED AREA = 3.96 ACRES±

SITE SOIL CLASSIFICATION:

53A – LATOURELL LOAM, 0 TO 3% SLOPES
53B – LATOURELL LOAM, 3 TO 8% SLOPES
71A – QUATAMA LOAM, 0 TO 3% SLOPES
82 – URBAN LAND
84 – WAPATO SILTY CLAY LOAM
91B – WOODBURN SILT LOAM, 3 TO 8% SLOPES
54B – URBAN LAND-QUATAMA COMPLEX, 3 TO 8% SLOPES
55 – WAPATO SILT LOAM

VERTICAL DATUM:

ELEVATIONS ARE BASED ON THE SOUTH ONE-QUARTER OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 2 EAST, PER CLACKAMAS COUNTY SURVEY NUMBER 2005-084 AND USBT 1991-011, ELEVATION OF 342.50 FEET (NAVD 88).

RECEIVING WATER BODIES:

WILLAMETTE RIVER VIA JOHNSON CREEK AND PUBLIC STORM SYSTEM

NOTE:
THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS EROSION AND SEDIMENT CONTROL PLAN AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

AKS ENGINEERING FORESTRY LLC. SHALL BE RETAINED TO PERFORM EROSION CONTROL INSPECTION SERVICES, OR THE OWNER MUST TRANSFER THE 1200C PERMIT INSPECTION DESIGNATION WITH OREGON DEQ PRIOR TO BEGINNING CONSTRUCTION.

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

1. HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
2. ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS. (SCHEDULE A.12.B AND SCHEDULE B.1)
3. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS. (SCHEDULE B.1.C AND B.2)
4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, THE ABOVE RECORDS MUST BE RETAINED BY THE PERMIT REGISTRANT BUT DO NOT NEED TO BE AT THE CONSTRUCTION SITE. (SCHEDULE B.2.C)
5. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A 8.A)
6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SCHEDULE A.12.C.I)
7. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SCHEDULE A.12.C.IV. AND V)
8. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.7.A.III)
9. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) AND (2))
10. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS. RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.A.V)
11. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50-FEET OF WATERS OF THE STATE. (SCHEDULE A.7.B.I.AND (2(A)(B))
12. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SCHEDULE A.8.C.I.(5))
13. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAMBANKS. (SCHEDULE A.7.C)
14. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SCHEDULE A.7.D.I)
15. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
16. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS. (SCHEDULE A.8.C.II.(3))
17. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
18. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND- DISTURBING ACTIVITIES. (SCHEDULE A 7.D.II AND A.8.C.I(4))
19. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(5))
20. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH-OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SCHEDULE A.6)
21. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
22. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A. 7.E.II.)
23. USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A 7.A.IV)
24. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.III)
25. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
26. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A 7.B)
27. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A 7.E.II.(2))
28. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND BARE GROUND ACTIVITIES DURING WET WEATHER. (SCHEDULE A.7.A.I)
29. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
30. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.I)
31. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
32. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN-UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
33. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
34. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
35. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
36. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED SOILS MUST BE REMOVED AND DISPOSED OF PROPERLY, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. (SCHEDULE A.8.C.III(1) AND D.3.C.II AND III)

CITY OF MILWAUKIE ESC NOTES

1. ALL EROSION PREVENTION MEASURES SHALL BE IN PLACE, FUNCTIONAL, AND APPROVED IN ACCORDANCE WITH THE APPROVED EROSION PREVENTION AND SEDIMENT CONTROL PLAN PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. ALL SOIL DISTURBING AND CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH MMC CHAPTER 16.28 EROSION CONTROL AND ANY APPLICABLE LOCAL, STATE OR FEDERAL REQUIREMENTS.
2. ALTERNATIVE SEDIMENT CONTROLS MUST PROVIDE A DISCHARGE THAT IS CLEAN AND FREE OF SEDIMENT, SURFACTANTS, AND OTHER POLLUTANTS PRIOR TO ENTERING THE STORM SYSTEM. APPROVAL OF ALTERNATIVE SEDIMENT CONTROLS BY THE CITY OF MILWAUKIE WASTEWATER DIVISION MANAGER IS REQUIRED PRIOR TO INSTALLATION.
3. WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES SHALL BE DEVELOPED, MAINTAINED, AND IMPLEMENTED ON THE CONSTRUCTION SITE.
4. DUMPING OR DISPOSAL OF SPOIL MATERIALS INTO ANY STREAM CORRIDOR, WETLANDS, SURFACE WATERS OR ON ANY PUBLIC OR PRIVATE PROPERTY NOT SPECIFIED FOR SAID PURPOSE IS PROHIBITED.
5. SEDIMENT AND POLLUTANTS SHALL NOT BE WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES. DRY SWEEPING SHALL BE IMPLEMENTED TO CLEAN UP CONSTRUCTION AREAS TO PREVENT RELEASE OF SEDIMENTS INTO THE STORM SYSTEM.
6. DISPOSAL OF SEDIMENT LADEN WATER INTO THE WASTEWATER SYSTEM IS PROHIBITED, UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE CITY OF MILWAUKIE WASTEWATER DIVISION MANAGER. SEDIMENT LADEN WATER SHALL BE PUMPED THROUGH AN APPROVED SEDIMENT CONTROL BMP PRIOR TO DISPOSAL INTO THE WASTEWATER SYSTEM.
7. SAWCUTTING SLURRY AND DEBRIS SHALL BE VACUUMED AND REMOVED FROM ALL IMPERVIOUS SURFACES. VACUUMED SAWCUTTING SLURRY SHALL BE PROPERLY DISPOSED OF AND NOT DISCHARGED INTO THE STORM SYSTEM.
8. WATER TIGHT TRUCKS SHALL BE USED TO TRANSPORT SATURATED SOILS FROM THE CONSTRUCTION SITE.
9. TEMPORARY STABILIZATION AND COVERING OF SOIL STOCKPILES SHALL OCCUR AT THE END OF EACH WORK DAY.
10. ALL TOXIC OR HAZARDOUS MATERIALS SHALL BE PROPERLY STORED, APPLIED, AND DISPOSED.
11. AN AREA SHALL BE DESIGNATED FOR WASHING OUT CONCRETE TRUCKS SUCH THAT RUNOFF FROM WASHING ACTIVITIES ARE CONTAINED AND DO NOT LEAVE THE SITE OR ENTER THE STORM SYSTEM.
12. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE WASHED TO THE STREET OR STORM SYSTEM. SWEEPINGS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN THE TRASH.
13. PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUNOFF INTO THE STORM SYSTEM IS PROHIBITED.
14. TRACKING OF DIRT AND DEBRIS ONTO IMPERVIOUS SURFACES, SUCH AS STREETS AND PARKING LOTS, IS PROHIBITED. IMPERVIOUS SURFACES SHALL BE KEPT FREE OF DIRT AND DEBRIS AT ALL TIMES IF IT CAN BE SPREAD BY TRAFFIC OR CAN ENTER THE STORM SYSTEM.
15. GRAVEL OR DIRT CURB RAMPS ARE PROHIBITED. ONLY WOOD STEP STYLE CURB RAMPS ARE ALLOWED.
16. UPON COMPLETION OF SITE RESTORATION AND APPROVAL FROM THE CITY OF MILWAUKIE ENGINEERING DIRECTOR, ALL TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED.
17. DRAINAGE FROM SPRINGS OR GROUNDWATER MUST BE ADDRESSED DURING CONSTRUCTION BY THE CONTRACTOR. DISCHARGE FROM GROUNDWATER ENCOUNTERED ON THE SITE MUST BE CLEAN OF SEDIMENT OR POLLUTANTS.
18. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCH, OR OTHER APPROVED MEASURES.
19. DATES OF IMPLEMENTATION OF WET WEATHER MEASURES ARE OCTOBER 1ST TO APRIL 30TH.
20. MATERIALS SHALL NOT BE STOCKPILED ON PUBLIC STREETS OR IN THE RIGHT OF WAY FOR LONGER THAN IMMEDIATE USE.

BMP MATRIX FOR CONSTRUCTION PHASES

REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S.

BMP'S	YEAR:	23	23	23	24	24	24	24	24
	MONTH:	7	8	9	5	6	7	8	9	10
PIPE SLOPE DRAINS										
ENERGY DISSIPATERS										
TEMPORARY DIVERSION DIKES										
CHECK DAMS		X	X	X	X	X	X	X	X	X
TEMPORARY SEEDING AND PLANTING										
PERMANENT SEEDING AND PLANTING				X						X
MYCORRHIZAE/ BIOFERTILIZERS										
STRAW MULCH				X						X
CONSTRUCTION ENTRANCE		X	X	X	X	X	X	X	X	X
COMPOST BLANKETS										
COMPOST SOCKS										
COMPOST BERM										
SOIL TACKIFIERS										
SODDING VEGETATIVE BUFFER STRIPS										
PLASTIC SHEETING			X	X	X	X	X	X	X	X
SEDIMENT FENCING *		X	X	X	X	X	X	X	X	X
EROSION CONTROL BLANKETS AND MATS (COCONUT FIBER)				X						X
EARTH DIKES (STABILIZED)										
DRAINAGE SWALES										
ROCK OUTLET PROTECTION					X	X	X	X	X	X
SEDIMENT TRAP										
STRAW WATTLES (LOOSE COMPACTION RICE STRAW)										
STORM DRAIN INLET PROTECTION *		X	X	X	X	X	X	X	X	X
TEMPORARY OR PERMANENT SEDIMENTATION BASINS										
UNPAVED ROADS GRAVELED OR OTHER BMP ON THE ROAD										
DEWATERING (TREATMENT LOCATION, SCHEMATIC, AND SAMPLING PLAN REQUIRED)										
PAVING OPERATION CONTROLS				X					X	X
CONCRETE TRUCK WASHOUT				X						X

* SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ's GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP's WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

INSPECTION FREQUENCY		
	SITE CONDITION	MINIMUM FREQUENCY
1.	ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY 14 DAYS REGARDLESS OF WETHER STORMWATER RUNOFF IS OCCURRING.
2.	PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3.	INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS.	ONCE EVERY MONTH.
4.	PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.
5.	PERIODS DURING WHICH DISCHARGE IS UNLIKELY DUE TO FROZEN CONDITIONS.	MONTHLY. RESUME MONITORING IMMEDIATELY UPON MELT, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

* HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.
* ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
* INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
* REVISIONS TO APPROVED ESC PLAN OR INSPECTOR MUST BE SUBMITTED TO DEQ OR AGENT IN ACCORDANCE WITH CURRENT 1200-C PERMIT.

PERMITTEE'S SITE INSPECTOR NATHAN MCCARTY

COMPANY/AGENCY: AKS ENGINEERING & FORESTRY, LLC
PHONE: 503-563-6151
FAX: 503-563-6152
E-MAIL: MCCARTYN@AKS-ENG.COM
DESCRIPTION OF EXPERIENCE: 9 YEARS INSPECTING EROSION AND SEDIMENT CONTROLS (CESCL #2016-009).

EROSION PREVENTION AND SEDIMENT CONTROL PLANS

C050-C 1200-C EROSION PREVENTION AND SEDIMENT CONTROL COVER SHEET
C050 STM A (STA 0+00 – 5+00) – EROSION CONTROL PLANS
C051 STM A (STA 5+00 – 11+00) – EROSION CONTROL PLANS
C052 STM A (STA 11+00 – 16+50) – EROSION CONTROL PLANS
C053 STM A (STA 16+50 – 21+50) – EROSION CONTROL PLANS
C054 STM A (STA 21+50 – 27+00) – EROSION CONTROL PLANS
C055 STM A (STA 27+00 – 33+00) – EROSION CONTROL PLANS
C056 STM A (STA 33+00 – 38+50) – EROSION CONTROL PLANS
C063 EROSION PREVENTION AND SEDIMENT CONTROL DETAILS
C064 EROSION PREVENTION AND SEDIMENT CONTROL DETAILS

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ENGINEERING · SURVEYING · NATURAL RESOURCES
FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION
OREGON
MILWAUKIE
CLACKAMAS COUNTY TAX LOTS
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

1200-C EROSION PREVENTION AND SEDIMENT CONTROL COVER SHEET

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

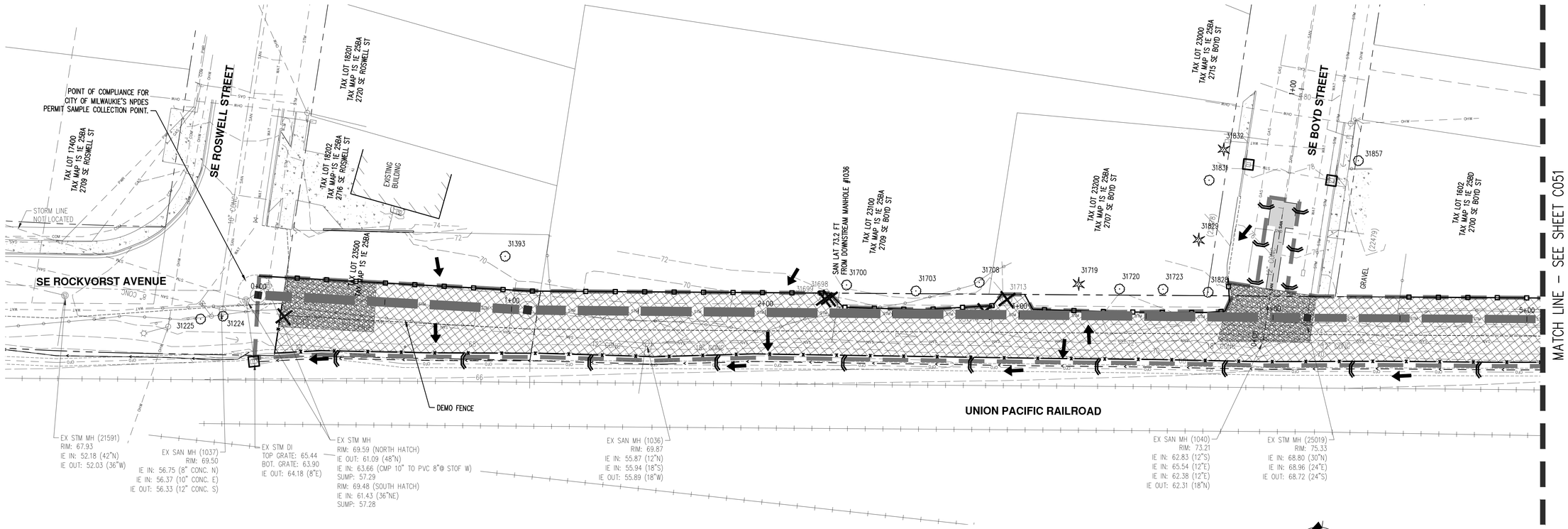
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2005 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C050-C

AKS DRAWING FILE: 5122 C050 ESC COVER.DWG | LAYOUT: COVER



LEGEND

- EXISTING GROUND CONTOUR (1 FT)
- EXISTING GROUND CONTOUR (5 FT)
- FINISHED GRADE CONTOUR (1 FT)
- FINISHED GRADE CONTOUR (5 FT)
- SEDIMENT FENCE
- ORANGE CONSTRUCTION/TREE PROTECTION FENCE
- TREE TO REMAIN
- TREE TO REMOVE
- INLET PROTECTION (TYP) PER DETAIL
- CHECK DAM BIOFILTER BAG
- CONCRETE WASHOUT AREA
- DRAINAGE FLOW DIRECTION
- GRAVEL CONSTRUCTION ENTRANCE
- PERMANENT GROUND COVER/LANDSCAPING
- PAVEMENT RESTORATION
- TRENCH SAWCUT IN PAVEMENT
- DISTURBED LIMITS
- PROPOSED STORM LINE
- PROPOSED WATER LINE

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ENGINEERING · SURVEYING · NATURAL RESOURCES
FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (STA 0+00 - 5+00) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2004 JOHN P. CHRISTIANSEN

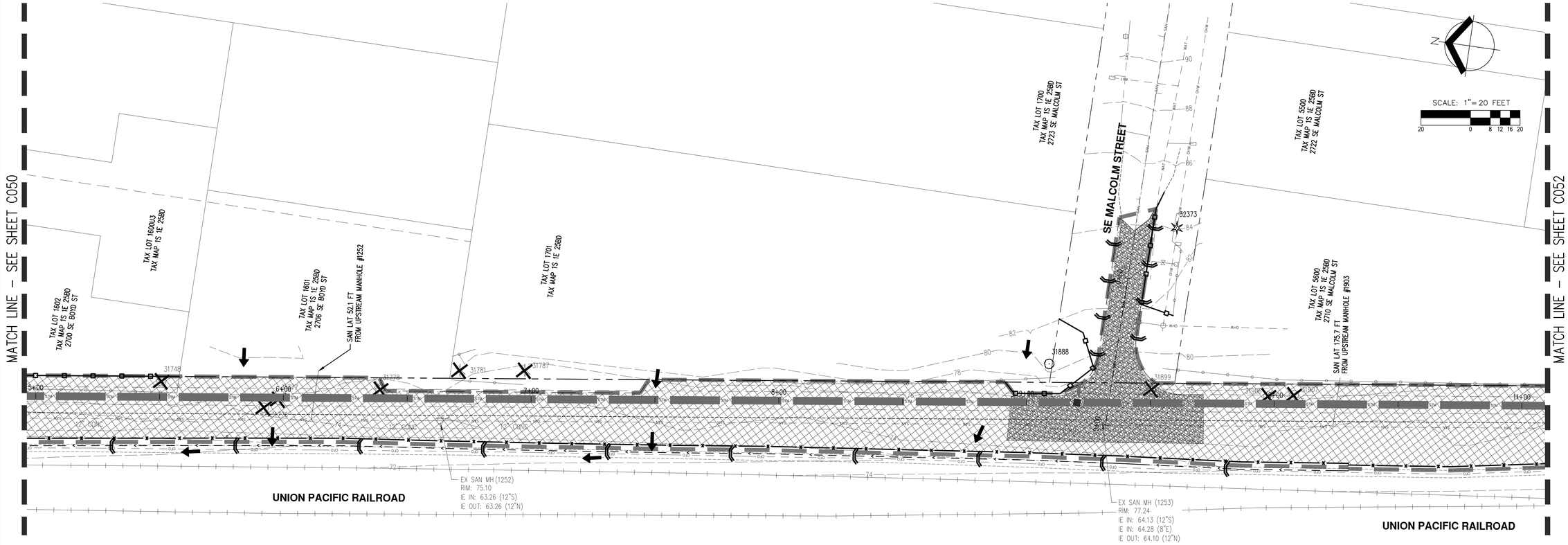
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET C050

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C050



LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	x x
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
TREE TO REMAIN	
TREE TO REMOVE	
INLET PROTECTION (TYP) PER DETAIL	
CHECK DAM BIOFILTER BAG	
CONCRETE WASHOUT AREA	
DRAINAGE FLOW DIRECTION	
GRAVEL CONSTRUCTION ENTRANCE	
PERMANENT GROUND COVER/LANDSCAPING	
PAVEMENT RESTORATION	
TRENCH SAWCUT IN PAVEMENT	
DISTURBED LIMITS	
PROPOSED STORM LINE	STM
PROPOSED WATER LINE	WAT

AKS ENGINEERING & FORESTRY, LLC
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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON
CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (STA 5+00 - 11+00) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN

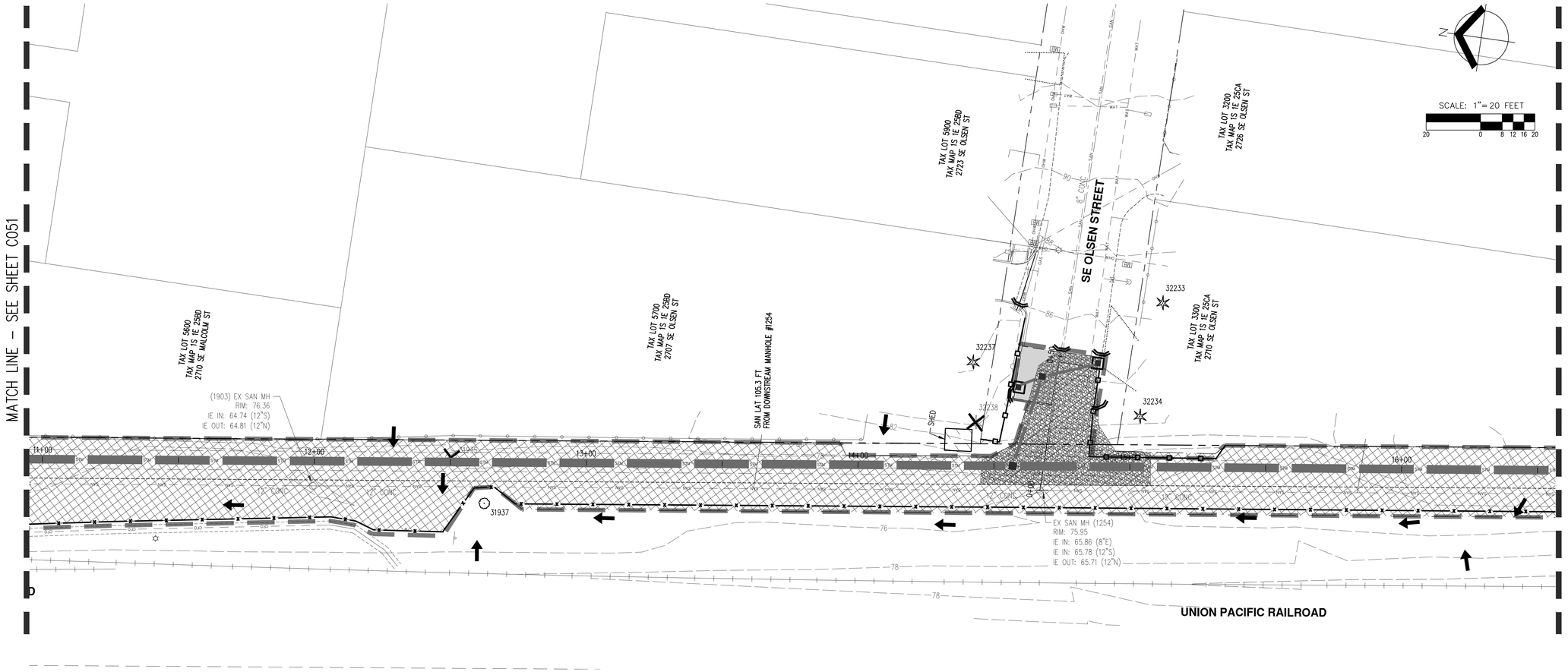
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C051

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C051



LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
TREE TO REMAIN	
TREE TO REMOVE	
INLET PROTECTION (TYP) PER DETAIL	
CHECK DAM BIOFILTER BAG	
CONCRETE WASHOUT AREA	
DRAINAGE FLOW DIRECTION	
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PERMANENT GROUND COVER/LANDSCAPING	
PAVEMENT RESTORATION	
TRENCH SAWCUT IN PAVEMENT	
DISTURBED LIMITS	
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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (STA 11+00 - 16+50) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

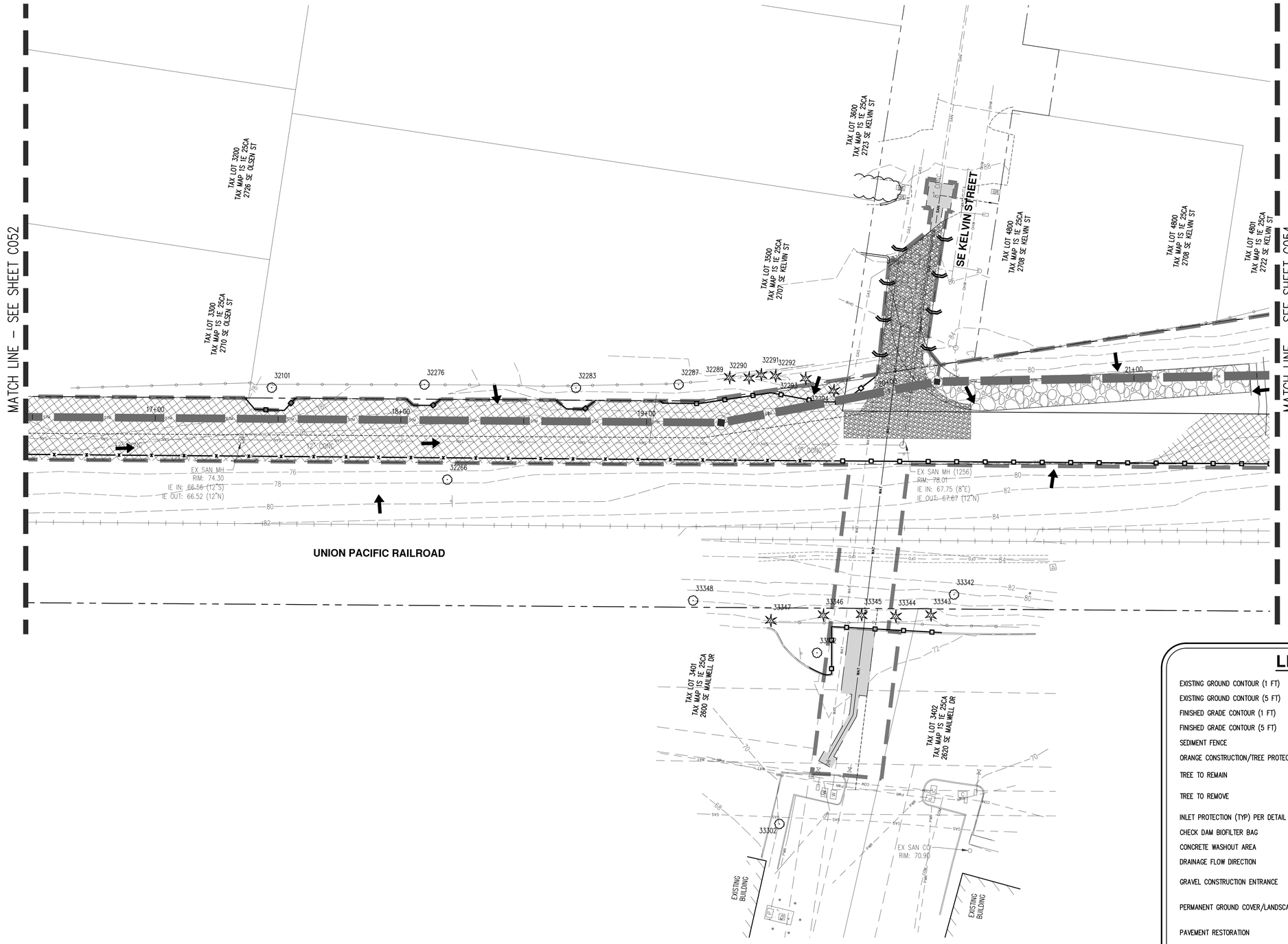
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C052

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C052



LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	X X
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
TREE TO REMAIN	
TREE TO REMOVE	
INLET PROTECTION (TYP) PER DETAIL	
CHECK DAM BIOFILTER BAG	
CONCRETE WASHOUT AREA	
DRAINAGE FLOW DIRECTION	
GRAVEL CONSTRUCTION ENTRANCE	
PERMANENT GROUND COVER/LANDSCAPING	
PAVEMENT RESTORATION	
TRENCH SAWCUT IN PAVEMENT	
DISTURBED LIMITS	
PROPOSED STORM LINE	STM
PROPOSED WATER LINE	WAT

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (STA 16+50 - 21+50) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C053

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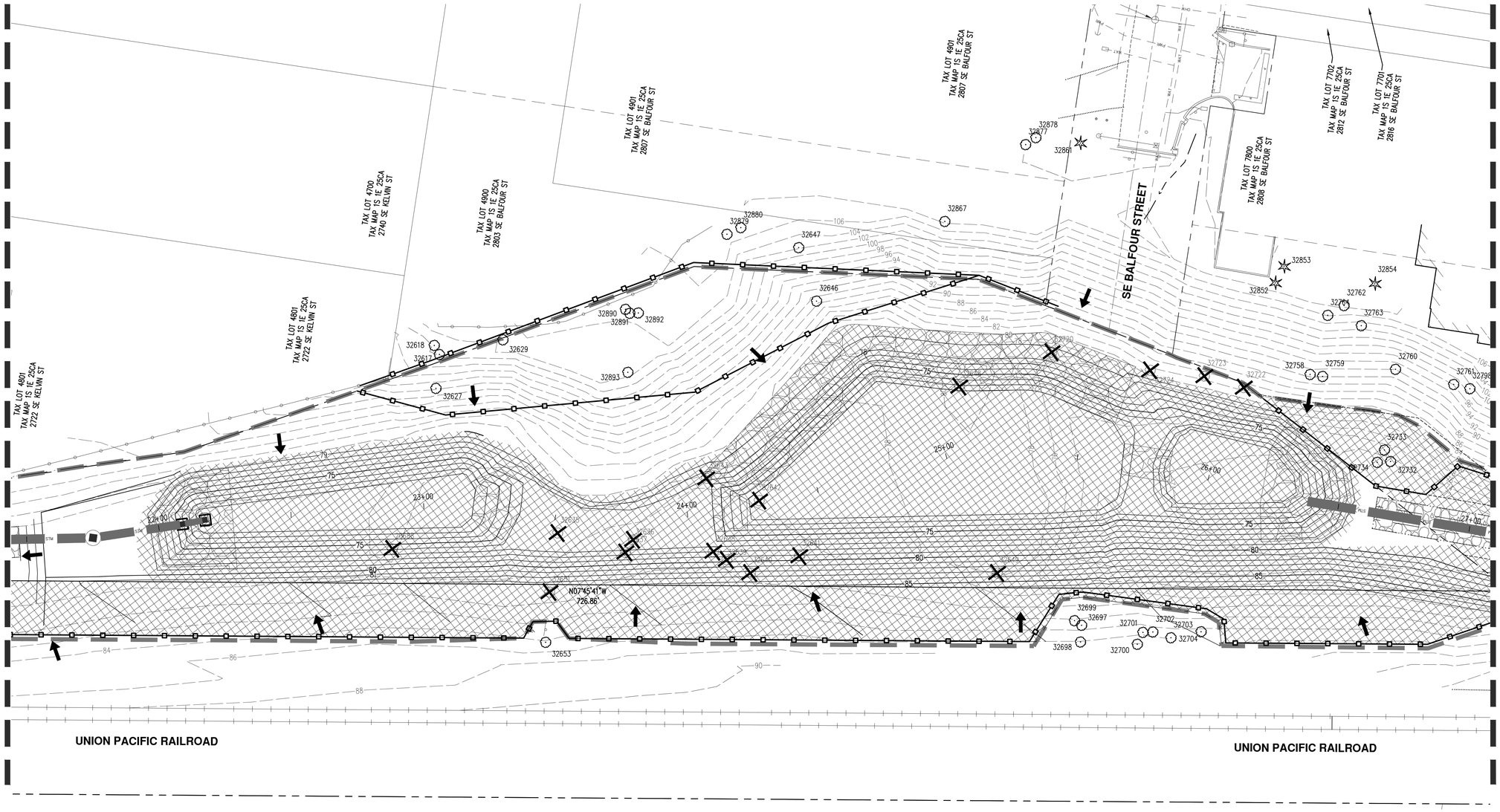

SCALE: 1"=20 FEET

GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING POND CONSTRUCTION TO PREVENT OVER-EXCAVATION.

LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	X X
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
TREE TO REMAIN	
TREE TO REMOVE	
INLET PROTECTION (TYP) PER DETAIL	
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DRAINAGE FLOW DIRECTION	
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PERMANENT GROUND COVER/LANDSCAPING	
PAVEMENT RESTORATION	
TRENCH SAWCUT IN PAVEMENT	
DISTURBED LIMITS	
PROPOSED STORM LINE	STM
PROPOSED WATER LINE	WAT

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CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (STA 21+50 - 27+00) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

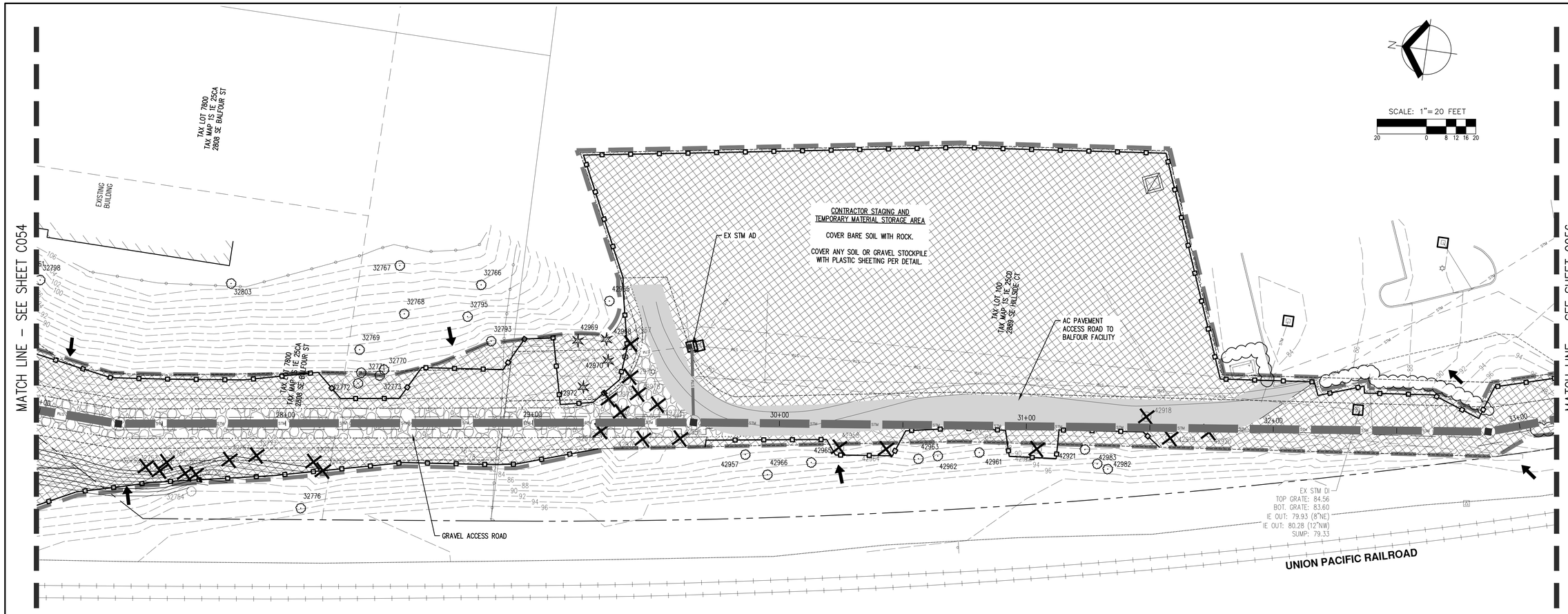
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C054

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C054



LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
TREE TO REMAIN	
TREE TO REMOVE	
INLET PROTECTION (TYP) PER DETAIL	
CHECK DAM BIOFILTER BAG	
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DRAINAGE FLOW DIRECTION	
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TRENCH SAWCUT IN PAVEMENT	
DISTURBED LIMITS	
PROPOSED STORM LINE	STM
PROPOSED WATER LINE	WAT

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MILWAUKIE — OREGON
CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (STA 27+00 - 33+00) - EROSION CONTROL PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2009
JOHN P. CHRISTIANSEN

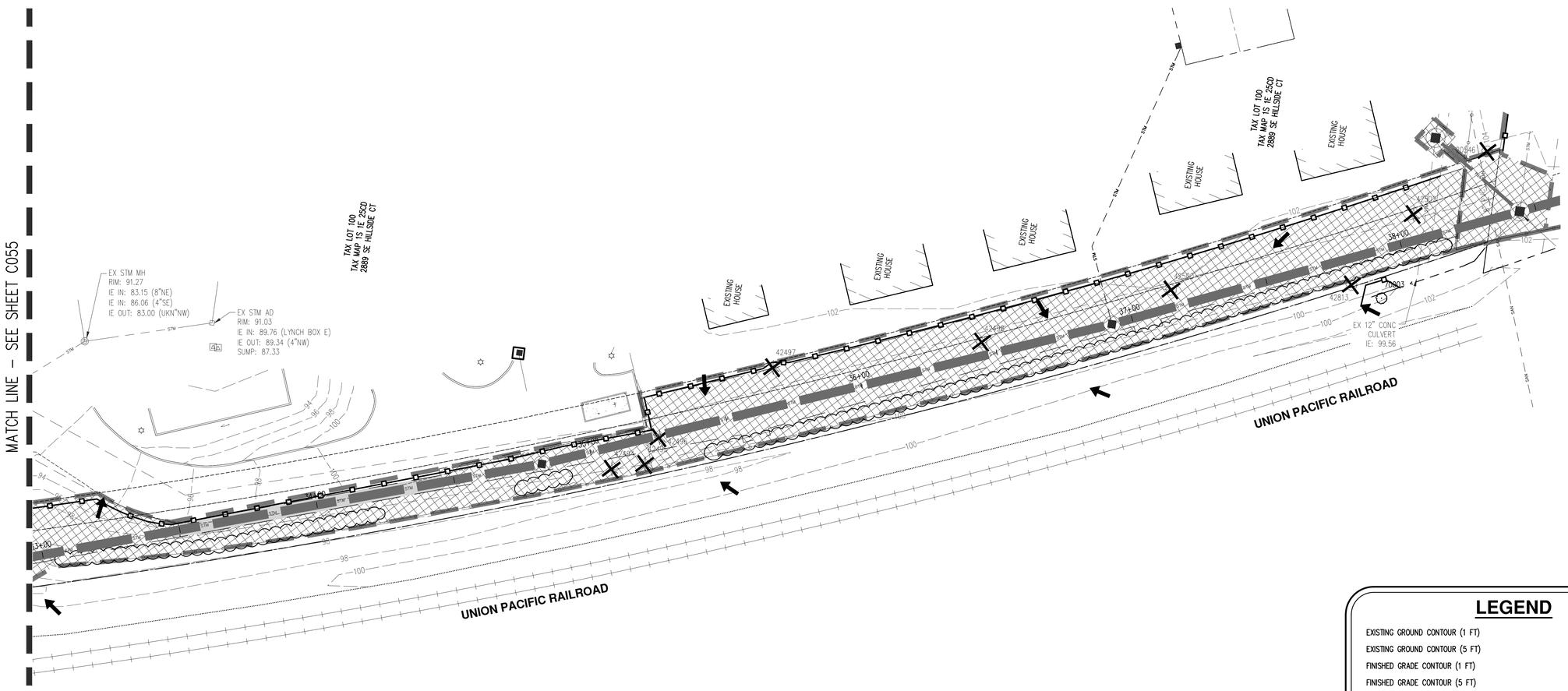
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C055

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C055



LEGEND

EXISTING GROUND CONTOUR (1 FT)	
EXISTING GROUND CONTOUR (5 FT)	350
FINISHED GRADE CONTOUR (1 FT)	
FINISHED GRADE CONTOUR (5 FT)	345
SEDIMENT FENCE	X X
ORANGE CONSTRUCTION/TREE PROTECTION FENCE	
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INLET PROTECTION (TYP) PER DETAIL	
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DISTURBED LIMITS	
PROPOSED STORM LINE	STM
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STM A (STA 33+00 - 38+50) - EROSION CONTROL PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

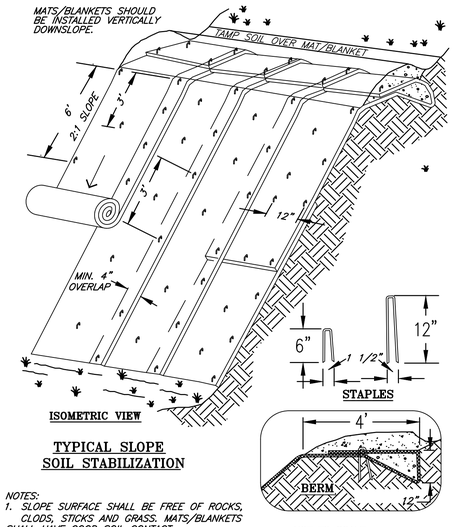
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C056

AKS DRAWING FILE: 5122 C050 ESC PLAN.DWG | LAYOUT: C056



TYPICAL SLOPE SOIL STABILIZATION

NOT TO SCALE

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

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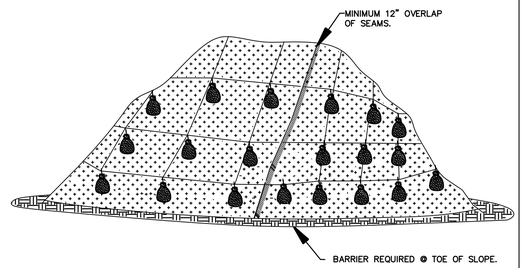
FILE: BLNKTSLP

MATTING - SLOPE INSTALLATION

DETAIL DRAWING 4–1 REVISED 01–09

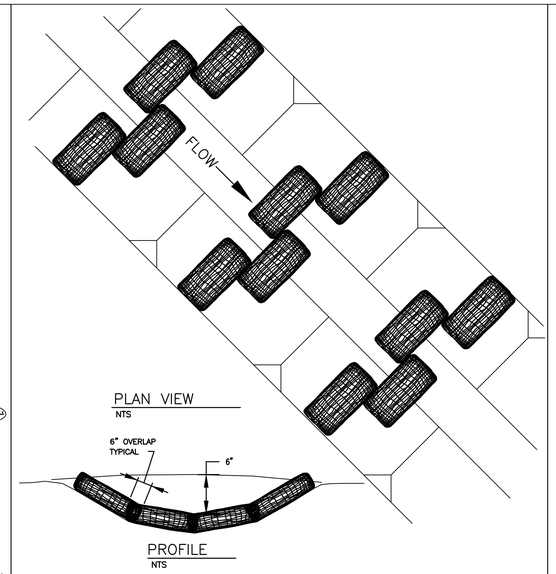


PLASTIC SHEETING

NOTES:
1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. BARRIER REQUIRED @ TOE OF STOCK PILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.

PLASTIC SHEETING

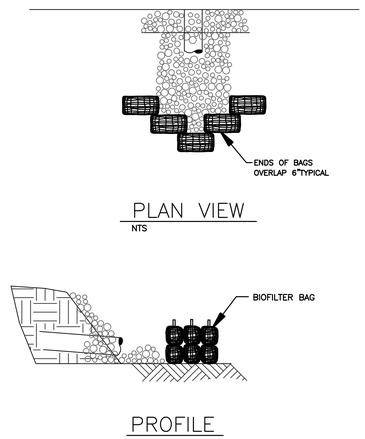
DETAIL DRAWING 4–3 REVISED 01–09



NOTES:
1. STAKING OF BAGS REQUIRED USING (2) 1"X2" WOOD STAKES OR APPROVED EQUAL PER BAG.
2. SURFACE MUST BE SMOOTH BEFORE APPLICATION.
3. CHECK DAMS CAN BE CONSTRUCTED USING STRAW WATTLES OR OTHER MATERIALS AS APPROVED BY THE DISTRICT OR CITY.

CHECK DAM - BIO-FILTER BAGS

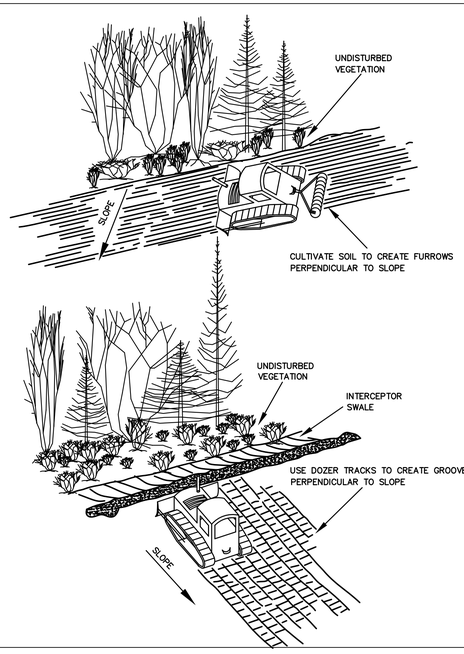
DETAIL DRAWING 4–5 REVISED 01–09



NOTE:
1. BIO BAGS ONLY REQUIRED WHEN DISCHARGING SEDIMENT LADEN WATER.
2. STAKING OF BAGS REQUIRED WITH EITHER METHOD USING (2) 1"x 2" WOOD STAKES OR APPROVED EQUAL PER BAG.

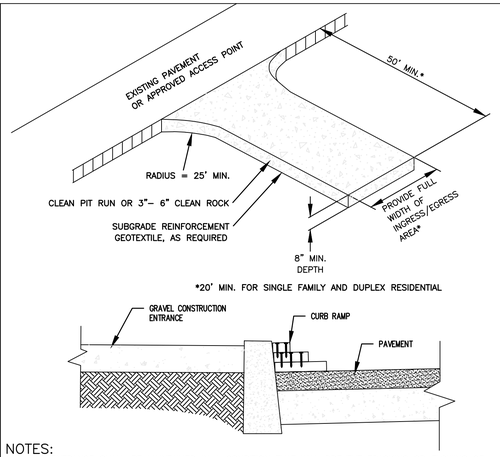
OUTLET PROTECTION - RIP RAP

DETAIL DRAWING 4–7 REVISED 01–09



SURFACE ROUGHENING - CAT TRACKING

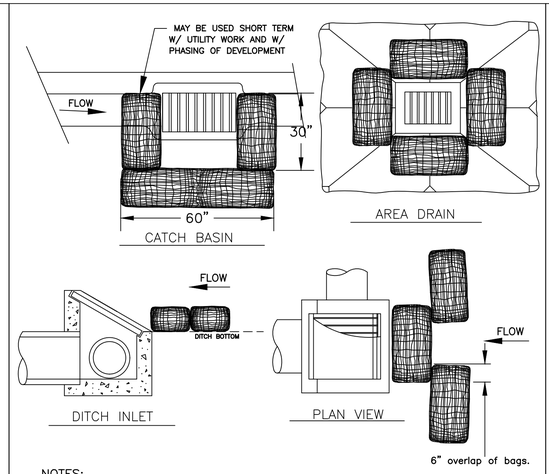
DETAIL DRAWING 4–10 REVISED 01–09



NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF– WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE 3–6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB–SOIL PUMPING.

CONSTRUCTION ENTRANCE

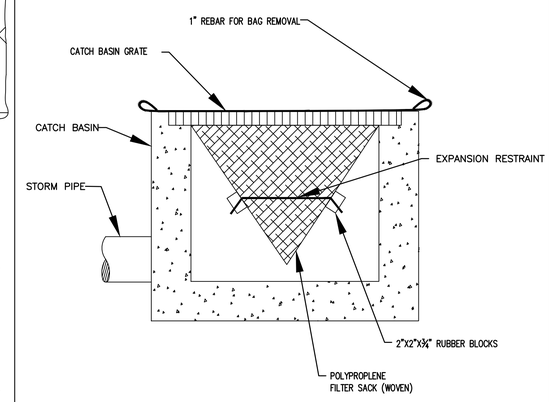
DETAIL DRAWING 4–13 REVISED 01–09



NOTES:
1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO–FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2"WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO–BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

INLET PROTECTION TYPE 4

DETAIL DRAWING 4–18 REVISED 01–09



WOVEN POLYPROPLENE SACK

NOTE:
1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

INLET PROTECTION TYPE 5

DETAIL DRAWING 4–19 REVISED 01–09

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MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

EROSION PREVENTION AND SEDIMENT CONTROL DETAILS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED

DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

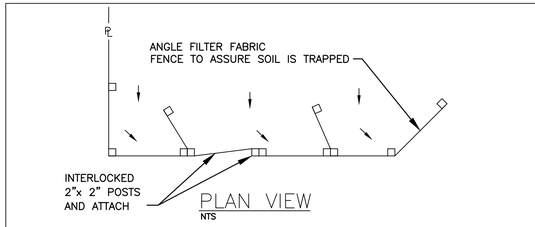
RENEWAL DATE: 12/31/23

REVISIONS

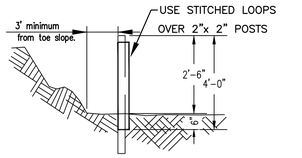
JOB NUMBER
5122

SHEET
C063

AKS DRAWING FILE: 5122 C064 ESC DETAILS.DWG | LAYOUT: C063



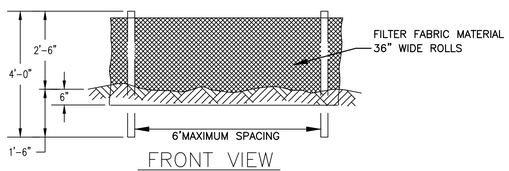
PLAN VIEW
NTS



PROFILE
NTS

NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON DETAIL NO.940

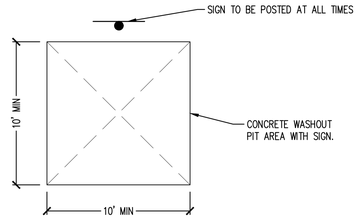


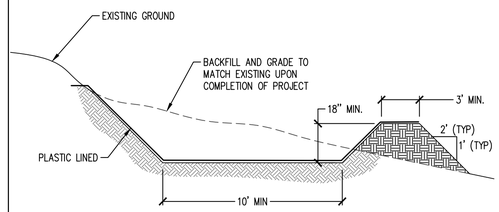
FRONT VIEW
NTS

SEDIMENT FENCE

DETAIL DRAWING 4-23

REVISED 01-09





NOTE: CONTRACTOR SHALL TAKE PRECAUTIONS SO AS TO NOT OVERFLOW PIT.

NOTES:

1. REMOVE AND LEGALLY DISPOSE OF WASTE MATERIAL WHEN IT ACCUMULATES TO 2/3 OF WET STORAGE CAPACITY OF PIT.
2. CONCRETE WASHOUT AREA TO BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE.
3. UPON COMPLETION OF CONSTRUCTION ACTIVITIES REQUIRING CONCRETE WASHOUT, THE WASHOUT SHALL BE REMOVED AND THE AREA RESTORED TO FINISH GRADE AND EXISTING CONDITION.

CONCRETE TRUCK WASHOUT

NTS

10
C064

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MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

EROSION PREVENTION AND SEDIMENT CONTROL DETAILS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2018
JOHN P. CHRISTIANSEN

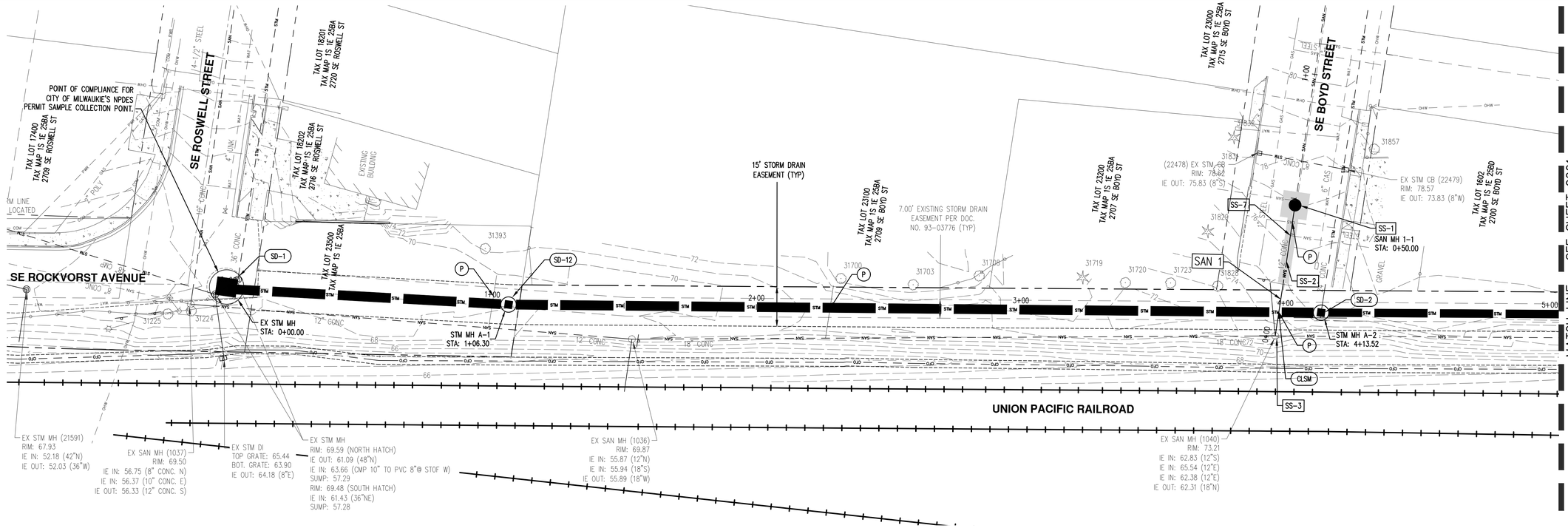
RENEWAL DATE: 12/31/23

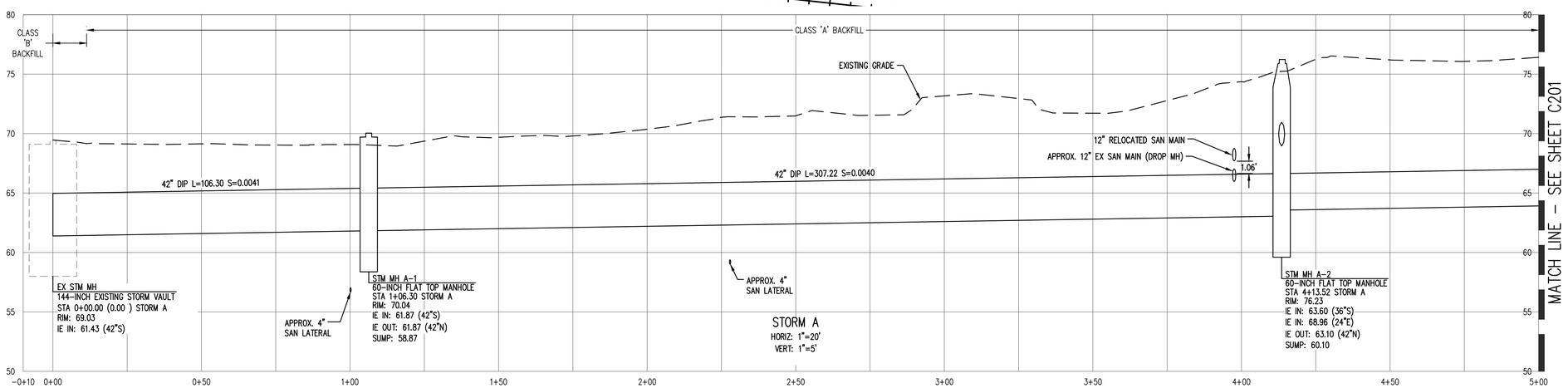
REVISIONS

JOB NUMBER
5122

SHEET
C064

AKS DRAWING FILE: 5122 C064 ESC DETAILS.DWG | LAYOUT: C064





STORM DRAIN KEYED NOTES:

- SD-1 CONNECT TO EXISTING STORM MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR. UTILIZE EXISTING KNOCKOUT. CONTRACTOR SHALL PLUG NEW CONNECTION THROUGHOUT CONSTRUCTION UNTIL IMPROVEMENTS ARE ACCEPTED BY THE CITY.
- SD-2 REMOVE EXISTING STORM MANHOLE. INSTALL 60" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345. CONNECT EXISTING 24"(E) TO NEW MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR (SEE STORM A PROFILE).
- SD-3 CONNECT NEW STORM TO EXISTING STORM STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE AND STORM STRUCTURE CONNECTION TABLE).
- SD-4 REMOVE EXISTING STORM MANHOLE. INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-5 INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-6 REMOVE EXISTING 12" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON IN-PLACE, REMAINING PORTIONS.
- SD-7 CONNECT EXISTING 12" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-8 INSTALL 60" FLAT TOP MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-9 DECOMMISSION AND ABANDON EXISTING STORM MAIN.
- SD-10 REMOVE EXISTING 15" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON IN PLACE, REMAINING PORTIONS.
- SD-11 CONNECT EXISTING 8" STORM LINE TO NEW STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-12 INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
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SANITARY SEWER KEYED NOTES:

- SS-1 INSTALL 48" MANHOLE OVER EXISTING 12" SANITARY SEWER MAIN PER COM DETAIL 301 AND ODOT DETAIL RD338 (SEE SAN PROFILE, THIS SHEET).
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- SS-3 CONNECT TO EXISTING SANITARY SEWER MH WITH KOR-N-SEAL II 306 SERIES, OR EQUAL, AND INSTALL OUTSIDE DROP (RELINER OR APPROVED EQUAL) PER DETAIL RD-352. PLUG AND ABANDON EXISTING INLETS EAST.
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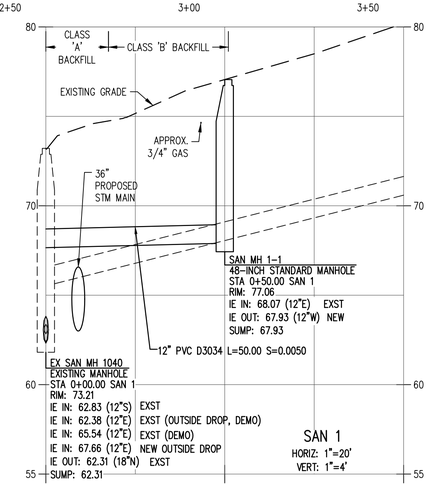

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- (P) CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. PROVIDE ENGINEER WITH HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
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FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (0+00 - 5+00) - PLAN AND PROFILE

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

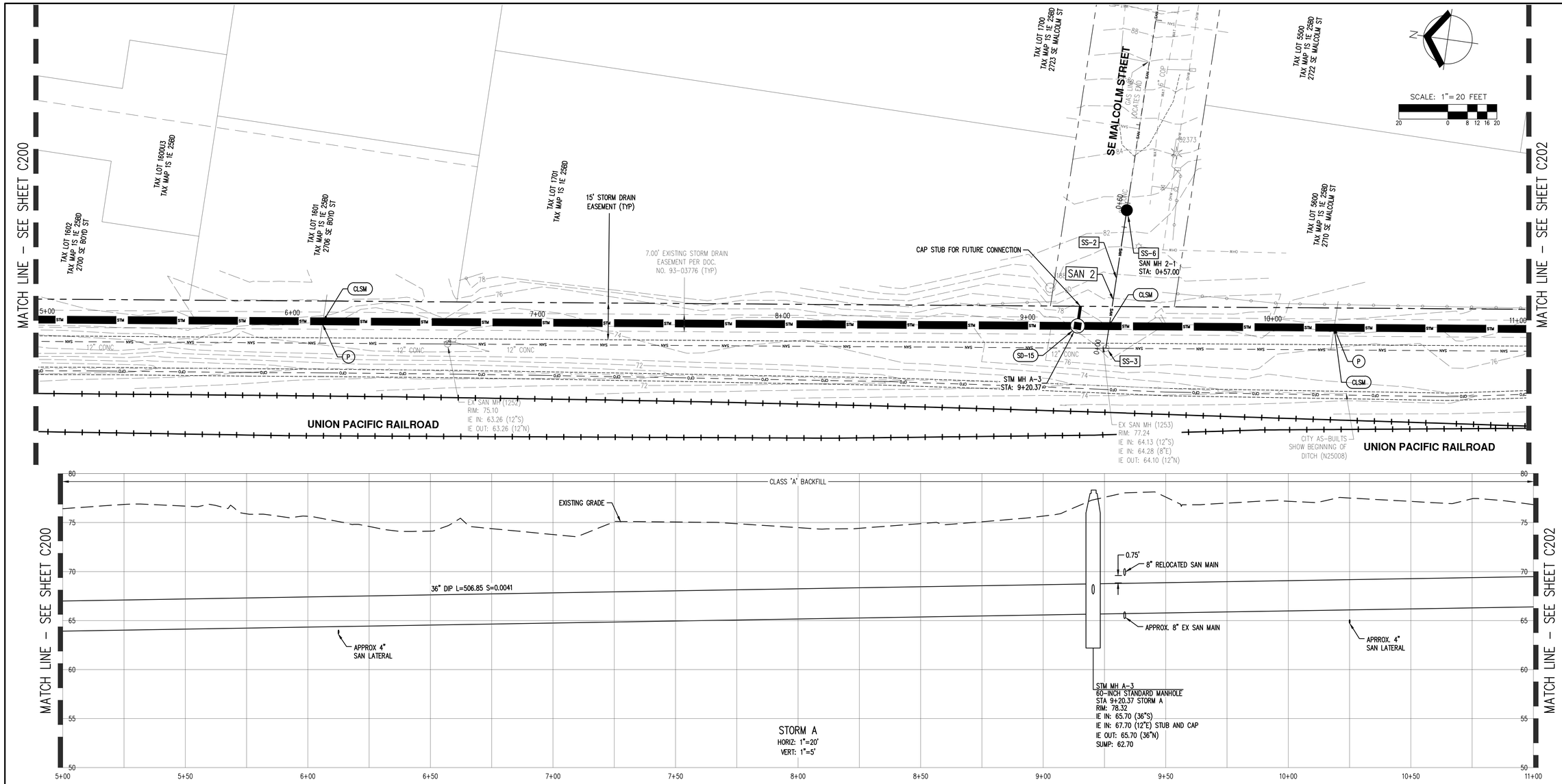
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET C200

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C200



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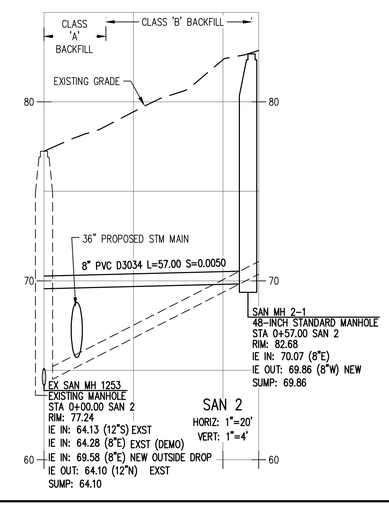

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON

CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (5+00 - 11+00) - PLAN AND PROFILE

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2004 JOHN P. CHRISTIANSEN

RENEWAL DATE: 12/31/23

REVISIONS

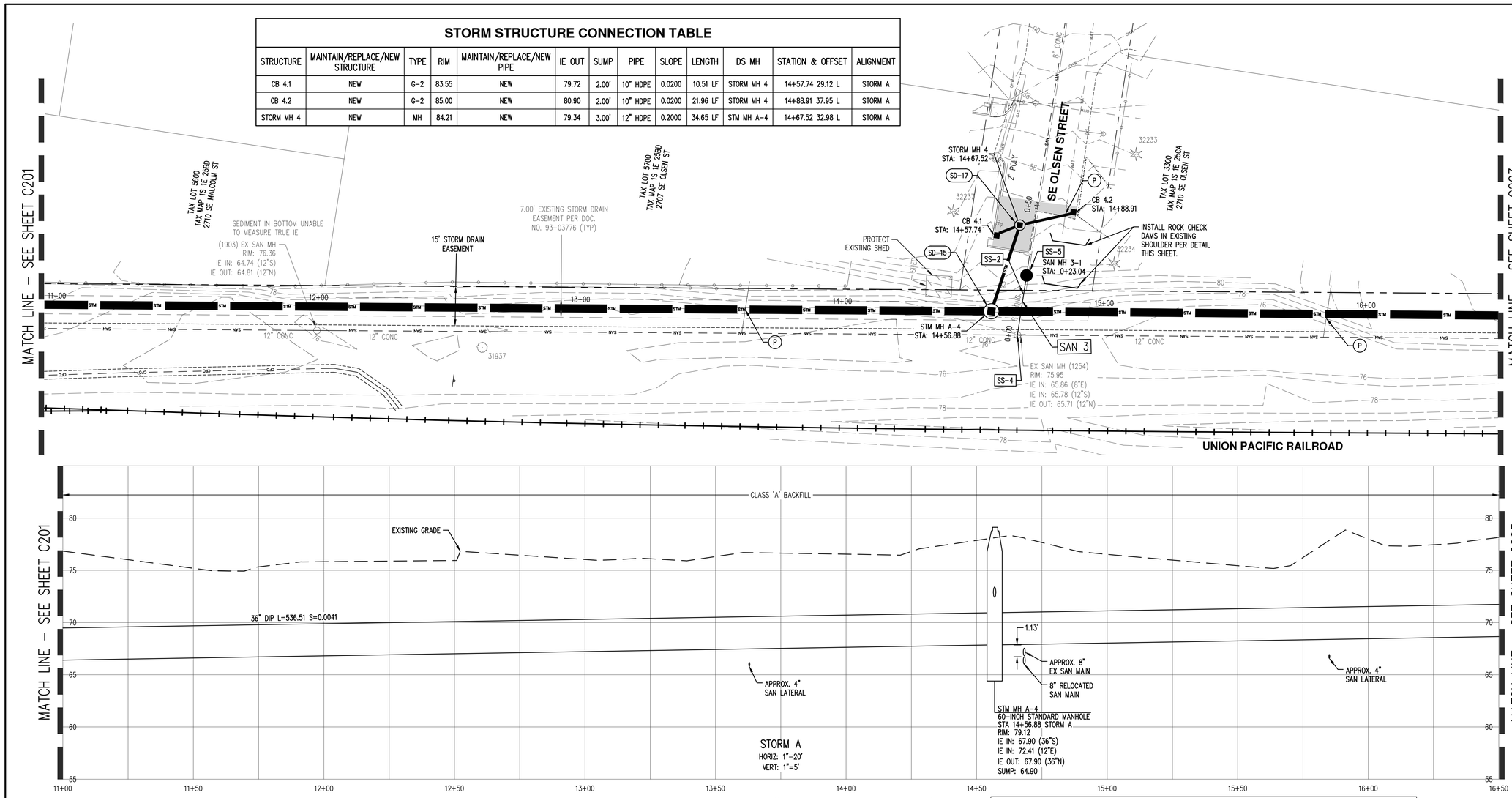
JOB NUMBER
5122

SHEET
C201

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C201

STORM STRUCTURE CONNECTION TABLE

STRUCTURE	MAINTAIN/REPLACE/NEW STRUCTURE	TYPE	RIM	MAINTAIN/REPLACE/NEW PIPE	IE OUT	SUMP	PIPE	SLOPE	LENGTH	DS MH	STATION & OFFSET	ALIGNMENT
CB 4.1	NEW	G-2	83.55	NEW	79.72	2.00'	10" HDPE	0.0200	10.51 LF	STORM MH 4	14+57.74 29.12 L	STORM A
CB 4.2	NEW	G-2	85.00	NEW	80.90	2.00'	10" HDPE	0.0200	21.96 LF	STORM MH 4	14+88.91 37.95 L	STORM A
STORM MH 4	NEW	MH	84.21	NEW	79.34	3.00'	12" HDPE	0.2000	34.65 LF	STM MH A-4	14+67.52 32.98 L	STORM A



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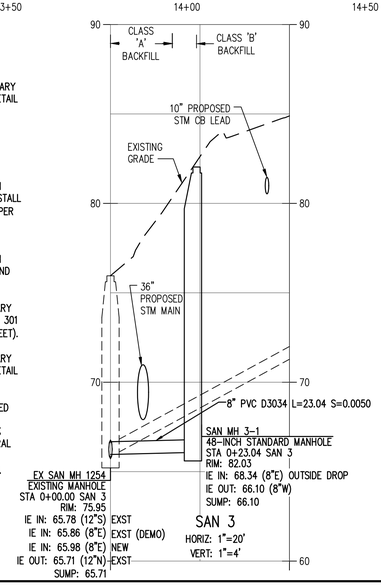

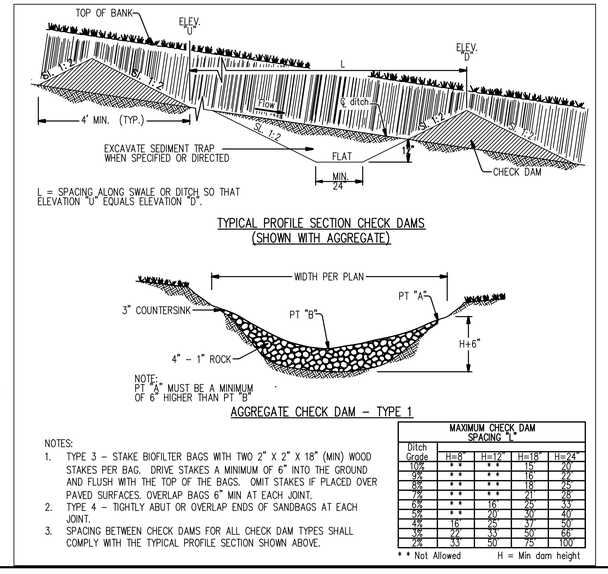

NOTES:

1. TYPE 3 - STAKE BIOFILTER BAGS WITH TWO 2" X 2" X 18" (MIN) WOOD STAKES PER BAG. DRIVE STAKES A MINIMUM OF 6" INTO THE GROUND AND FLUSH WITH THE TOP OF THE BAGS. OMIT STAKES IF PLACED OVER PAVED SURFACES. OVERLAP BAGS 6" MIN AT EACH JOINT.
2. TYPE 4 - TIGHTLY ABUT OR OVERLAP ENDS OF SANDBAGS AT EACH JOINT.
3. SPACING BETWEEN CHECK DAMS FOR ALL CHECK DAM TYPES SHALL COMPLY WITH THE TYPICAL PROFILE SECTION SHOWN ABOVE.

MAXIMUM CHECK DAM SPACING "L"

Ditch Grade	H=8"	H=12"	H=18"	H=24"
10%	* *	* *	15'	20'
9%	* *	* *	16'	21'
8%	* *	* *	18'	24'
7%	* *	* *	21'	28'
6%	* *	16'	25'	33'
5%	* *	20'	30'	40'
4%	16'	25'	37'	50'
3%	22'	33'	50'	66'
2%	33'	50'	75'	100'

* * Not Allowed H = Min dam height

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SCALE: 1"= 20 FEET

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STM A (11+00 - 16+50) - PLAN AND PROFILE

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

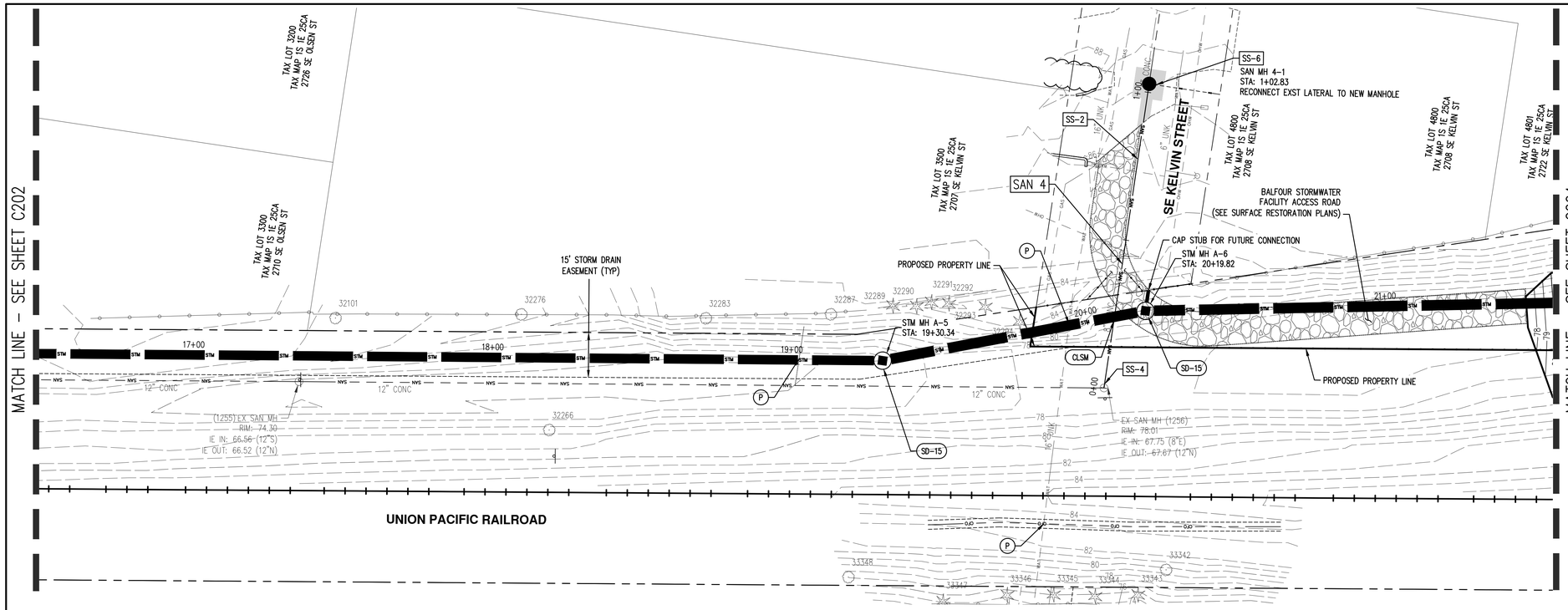
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

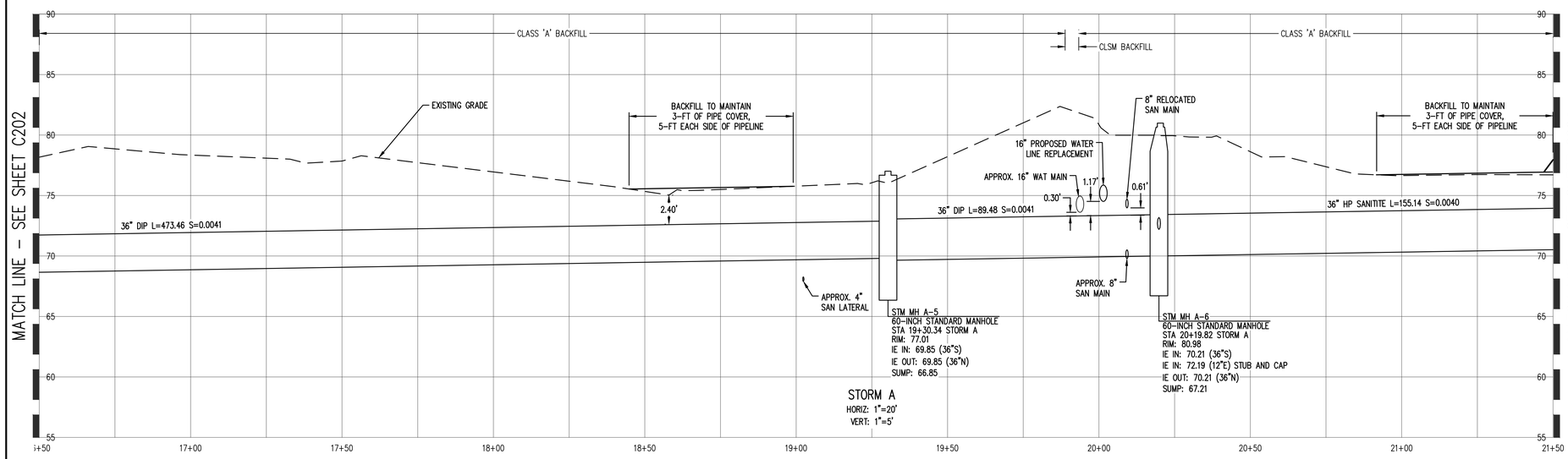
REVISIONS

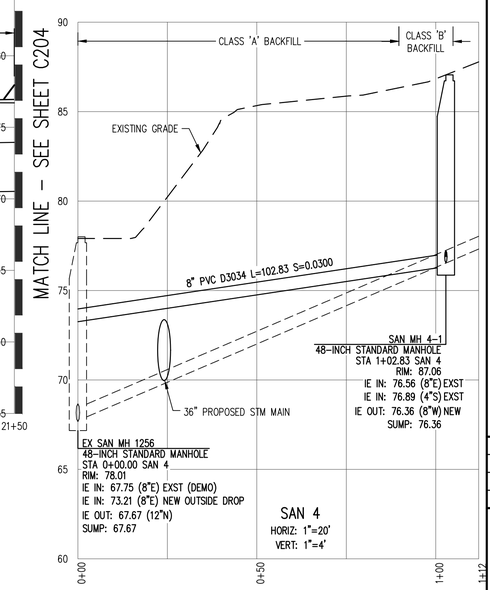
JOB NUMBER 5122

SHEET C202

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C202







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- SD-19 INSTALL 60" STORM SEWER POLLUTION CONTROL MANHOLE PER DETAILS 208, RD336, RD340 AND RD345.
- SD-20 INSTALL 72" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.

SANITARY SEWER KEYED NOTES:

- SS-1 INSTALL 48" MANHOLE OVER EXISTING 12" SANITARY SEWER MAIN PER COM DETAIL 301 AND ODOT DETAIL RD338 (SEE SAN PROFILE, THIS SHEET).
- SS-2 REMOVE CONCRETE SANITARY SEWER. INSTALL PVC SANITARY SEWER (SEE SAN PROFILE, THIS SHEET).
- SS-3 CONNECT TO EXISTING SANITARY SEWER MH WITH KOR-N-SEAL II 306 SERIES, OR EQUAL, AND INSTALL OUTSIDE DROP (RELINER OR APPROVED EQUAL) PER DETAIL RD-352. PLUG AND ABANDON EXISTING INLETS EAST.
- SS-4 CONNECT TO EXISTING SANITARY SEWER MH WITH KOR-N-SEAL II 306 SERIES, OR EQUAL. PLUG AND ABANDON EXISTING INLETS EAST.
- SS-5 INSTALL 48" MANHOLE OVER EXISTING 8" SANITARY SEWER MAIN WITH OUTSIDE DROP PER COM DETAIL 301 AND ODOT DETAIL RD338 (SEE PROFILE THIS SHEET).
- SS-6 INSTALL 48" MANHOLE OVER EXISTING 8" SANITARY SEWER MAIN PER COM DETAIL 301 AND ODOT DETAIL RD338 (SEE PROFILE THIS SHEET.

GENERAL KEYED NOTES: (#)

- (P) CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. PROVIDE ENGINEER WITH HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- (CLSM) BACKFILL UTILITY CROSSING WITH CONTROLLED LOW STRENGTH MATERIAL PER DETAIL ON SHEET C217.

NOTE:

PROPOSED PROPERTY LINE BASED ON ANTICIPATED REAL ESTATE TRANSACTION WITH UPRR. PROCESS IN LAND USE REVIEW.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (16+50 - 21+50) - PLAN AND PROFILE

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2007 JOHN P. CHRISTIANSEN

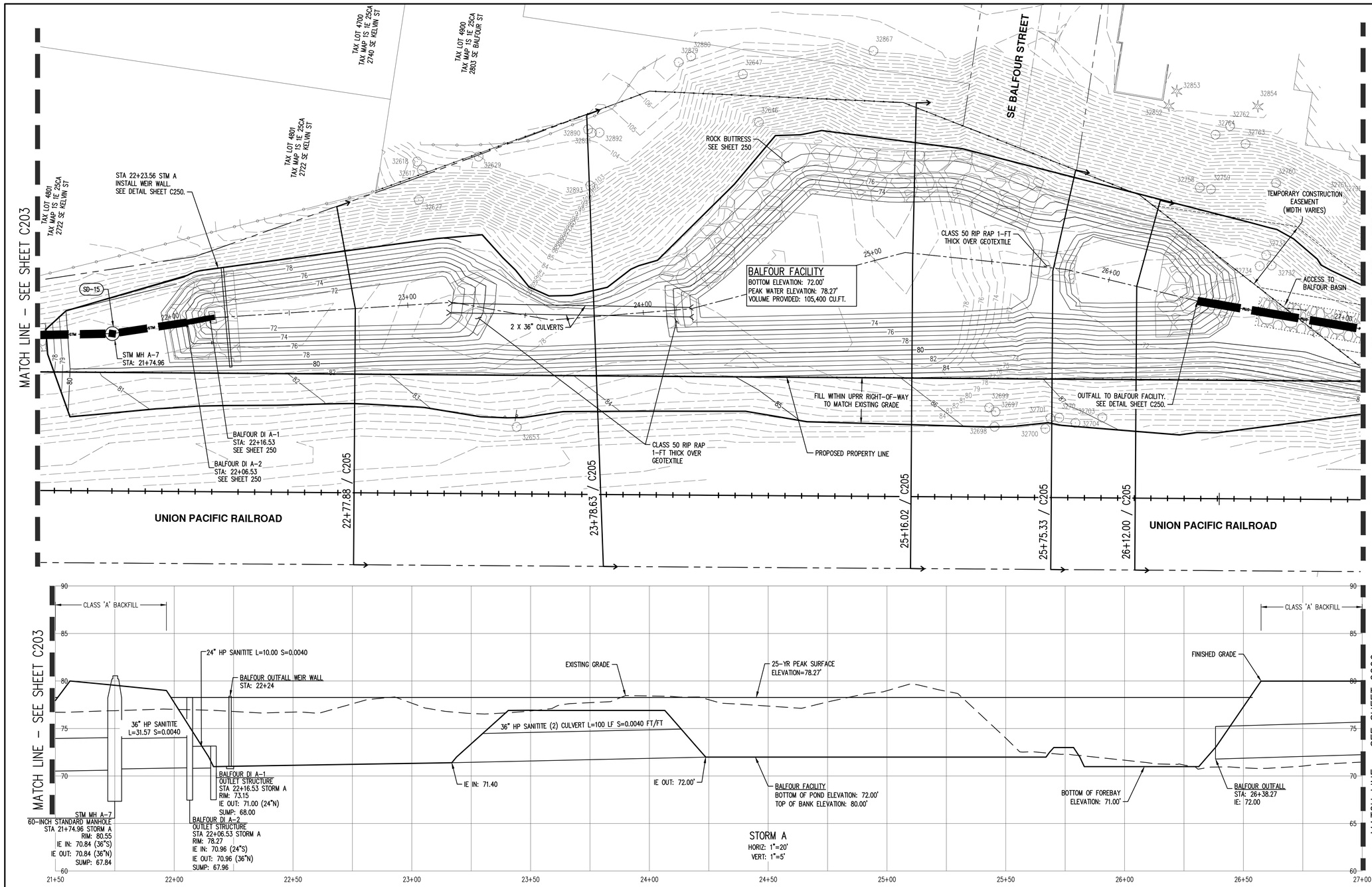
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C203

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C203



SCALE: 1"=20 FEET

STORM DRAIN KEYED NOTES:

- SD-1 CONNECT TO EXISTING STORM MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR. UTILIZE EXISTING KNOCKOUT.
- SD-2 REMOVE EXISTING STORM MANHOLE. INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345. CONNECT EXISTING 24"(E) TO NEW MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR (SEE STORM A PROFILE).
- SD-3 CONNECT NEW STORM TO EXISTING STORM STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE AND STORM STRUCTURE CONNECTION TABLE).
- SD-4 REMOVE EXISTING STORM MANHOLE. INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-5 INSTALL 72" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-6 REMOVE EXISTING 12" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON, REMAINING IN PLACE.
- SD-7 CONNECT EXISTING 12" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-8 INSTALL 60" FLAT TOP MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-9 DECOMMISSION AND ABANDON EXISTING STORM MAIN.
- SD-10 REMOVE EXISTING 15" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON, REMAINING IN PLACE.
- SD-11 CONNECT EXISTING 8" STORM LINE TO NEW STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-12 INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-13 CONNECT EXISTING 10" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-14 INSTALL 72" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-15 INSTALL 60" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-16 INSTALL 72" STANDARD MANHOLE OVER EXISTING 18" MAIN PER DETAILS 208, RD338 AND RD345.
- SD-17 INSTALL 48" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-18 INSTALL 60" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-19 INSTALL 60" STORM SEWER POLLUTION CONTROL MANHOLE PER DETAILS 208, RD336, RD340 AND RD345.
- SD-20 INSTALL 72" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.

GENERAL KEYED NOTES: (#)

- (P) CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. PROVIDE ENGINEER WITH HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- (CLSM) BACKFILL UTILITY CROSSING WITH CONTROLLED LOW STRENGTH MATERIAL PER DETAIL ON SHEET C217.
- X. CONSTRUCT 12' WIDE GRAVEL ACCESS ROAD PER DETAIL ON SHEET C551.

NOTE:

PROPOSED PROPERTY LINE BASED ON ANTICIPATED REAL ESTATE TRANSACTION WITH UPRR. PROCESS IN LAND USE REVIEW.

GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING POND CONSTRUCTION TO PREVENT OVER-EXCAVATION.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (21+50 - 27+00) - PLAN AND PROFILE

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

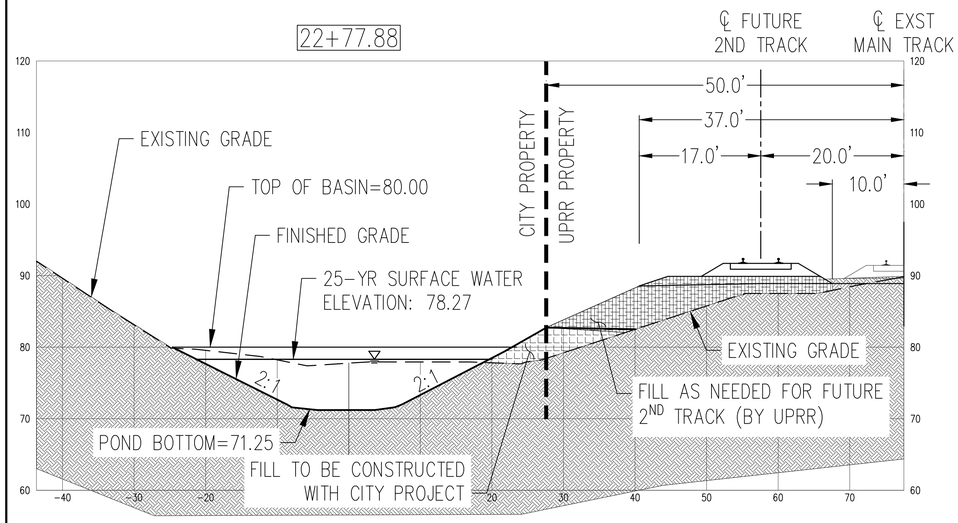
RENEWAL DATE: 12/31/23

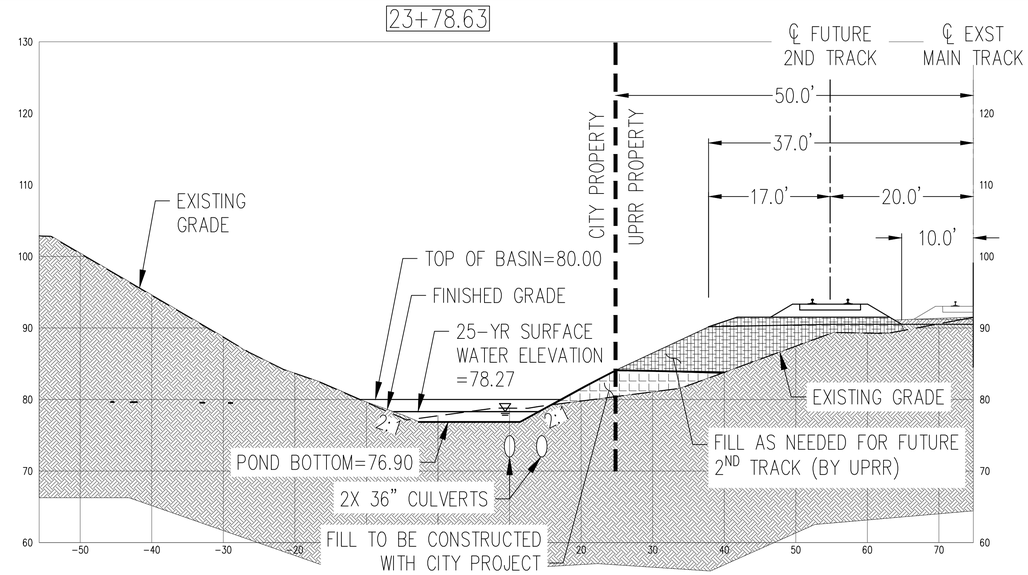
REVISIONS

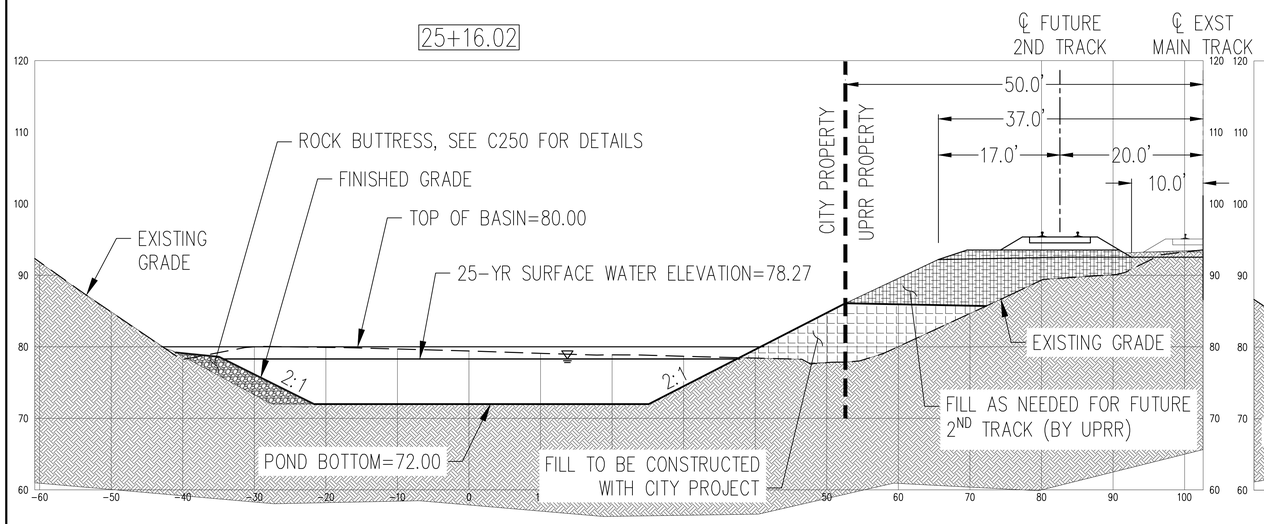
JOB NUMBER
5122

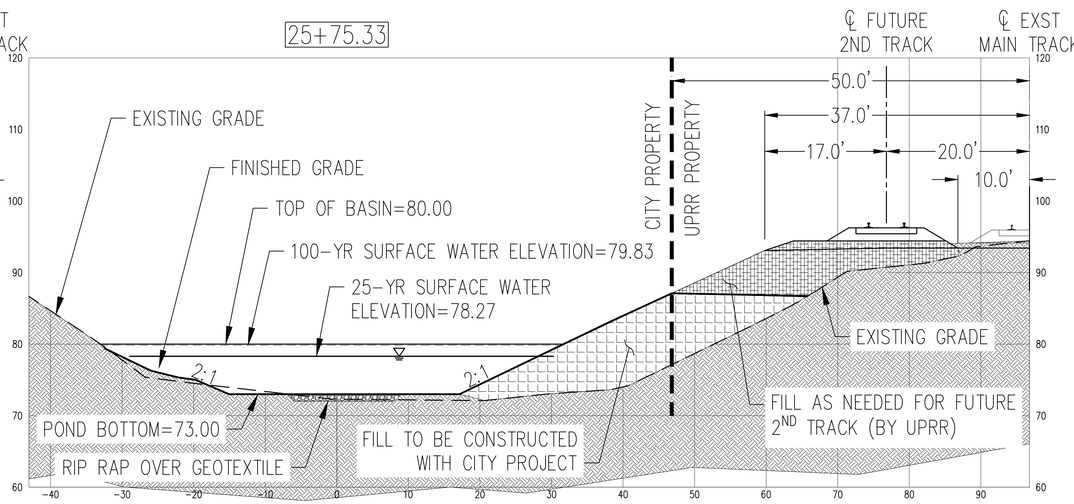
SHEET
C204

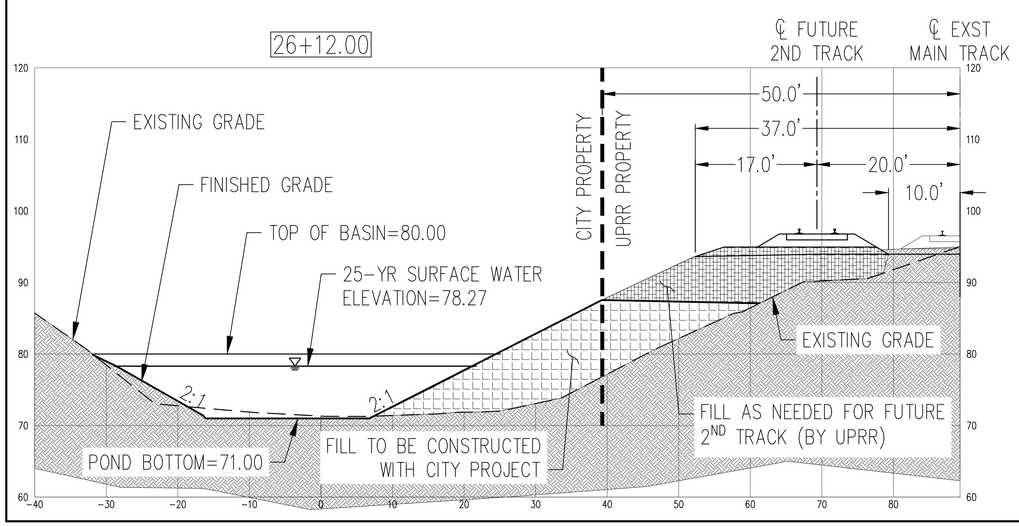
AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C204











SCALE: 1"=10 FEET

NOTE:
- PROPOSED PROPERTY LINE BASED ON ANTICIPATED REAL ESTATE TRANSACTION WITH UPRR. PROCESS IN LAND USE REVIEW.
- PROJECT WILL CONSTRUCT 2:1 EMBANKMENT SLOPE ABOVE POND ELEVATION TO PROPOSED PROPERTY LINE.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

BALFOUR FACILITY CROSS SECTIONS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2004 JOHN P. CHRISTIANSEN

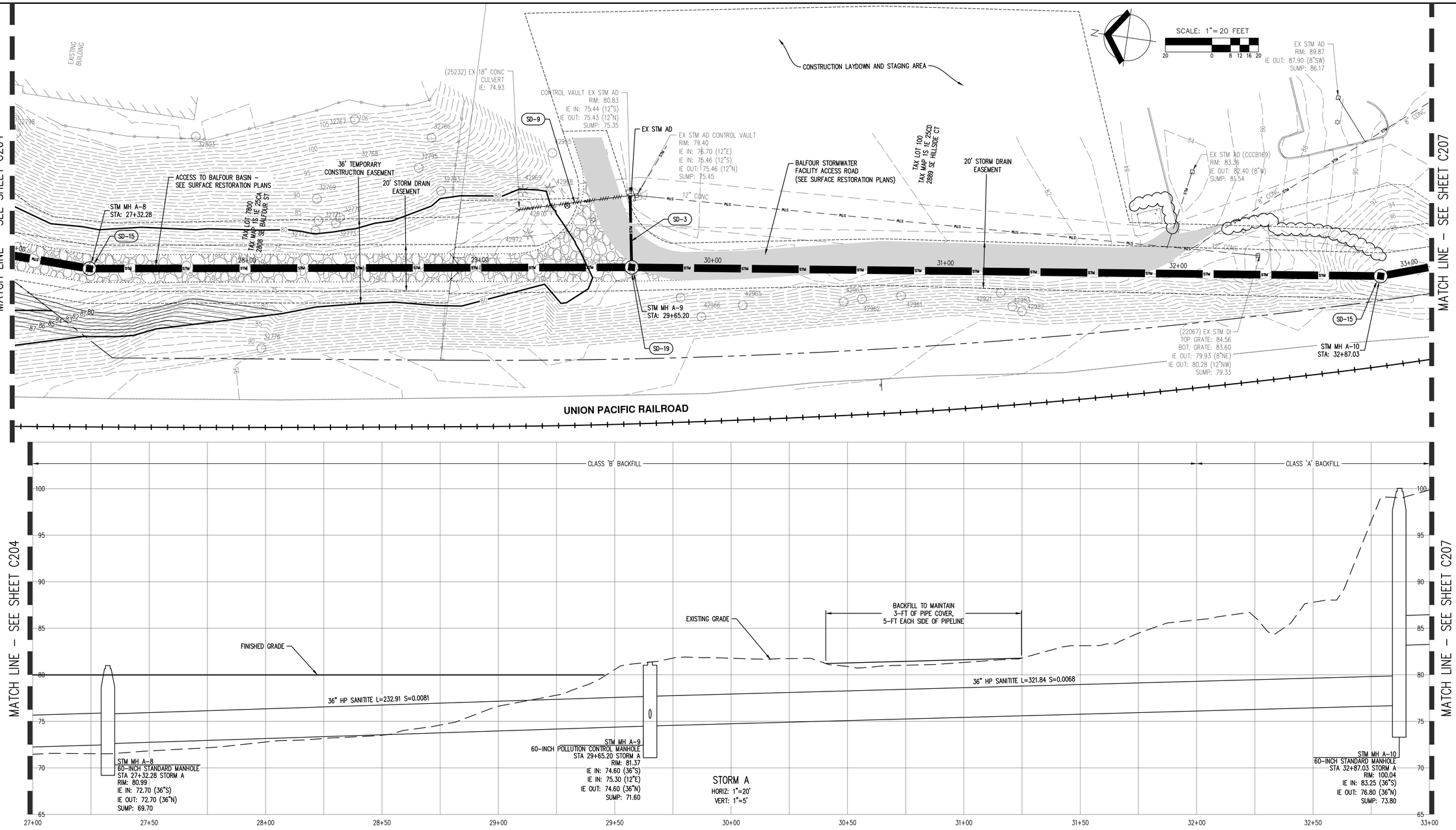
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET C205

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: BALF X-SECS UPRR



STORM DRAIN KEYED NOTES:

- SD-1 CONNECT TO EXISTING STORM MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR. UTILIZE EXISTING KNOCKOUT.
- SD-2 REMOVE EXISTING STORM MANHOLE. INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345. CONNECT EXISTING 24"(E) TO NEW MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR (SEE STORM A PROFILE).
- SD-3 CONNECT NEW STORM TO EXISTING STORM STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE AND STORM STRUCTURE CONNECTION TABLE).
- SD-4 REMOVE EXISTING STORM MANHOLE. INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-5 INSTALL 72" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-6 REMOVE EXISTING 12" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON, REMAINING IN PLACE.
- SD-7 CONNECT EXISTING 12" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-8 INSTALL 60" FLAT TOP MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-9 DECOMMISSION AND ABANDON EXISTING STORM MAIN.
- SD-10 REMOVE EXISTING 15" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON, REMAINING IN PLACE.
- SD-11 CONNECT EXISTING 8" STORM LINE TO NEW STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-12 INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
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- SD-19 INSTALL 60" STORM SEWER POLLUTION CONTROL MANHOLE PER DETAILS 208, RD336, RD340 AND RD345.
- SD-20 INSTALL 72" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.

STORM STRUCTURE CONNECTION TABLE

STRUCTURE	MAINTAIN/REPLACE/NEW STRUCTURE	RIM	MAINTAIN/REPLACE/NEW PIPE	IE OUT	SUMP	PIPE	SLOPE	LENGTH	DS MH	STATION & OFFSET	ALIGNMENT
EX STM AD	MAINTAIN EXISTING	80.83	NEW	75.46	2.00'	12" HDPE	0.0050	30.85 LF	STM MH A-9	29+64.62 30.85 L	STORM A

GENERAL KEYED NOTES: (#)

- (P) CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. PROVIDE ENGINEER WITH HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- (CLSM) BACKFILL UTILITY CROSSING WITH CONTROLLED LOW STRENGTH MATERIAL PER DETAIL ON SHEET C217.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (27+00 - 33+00) - PLAN AND PROFILE

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

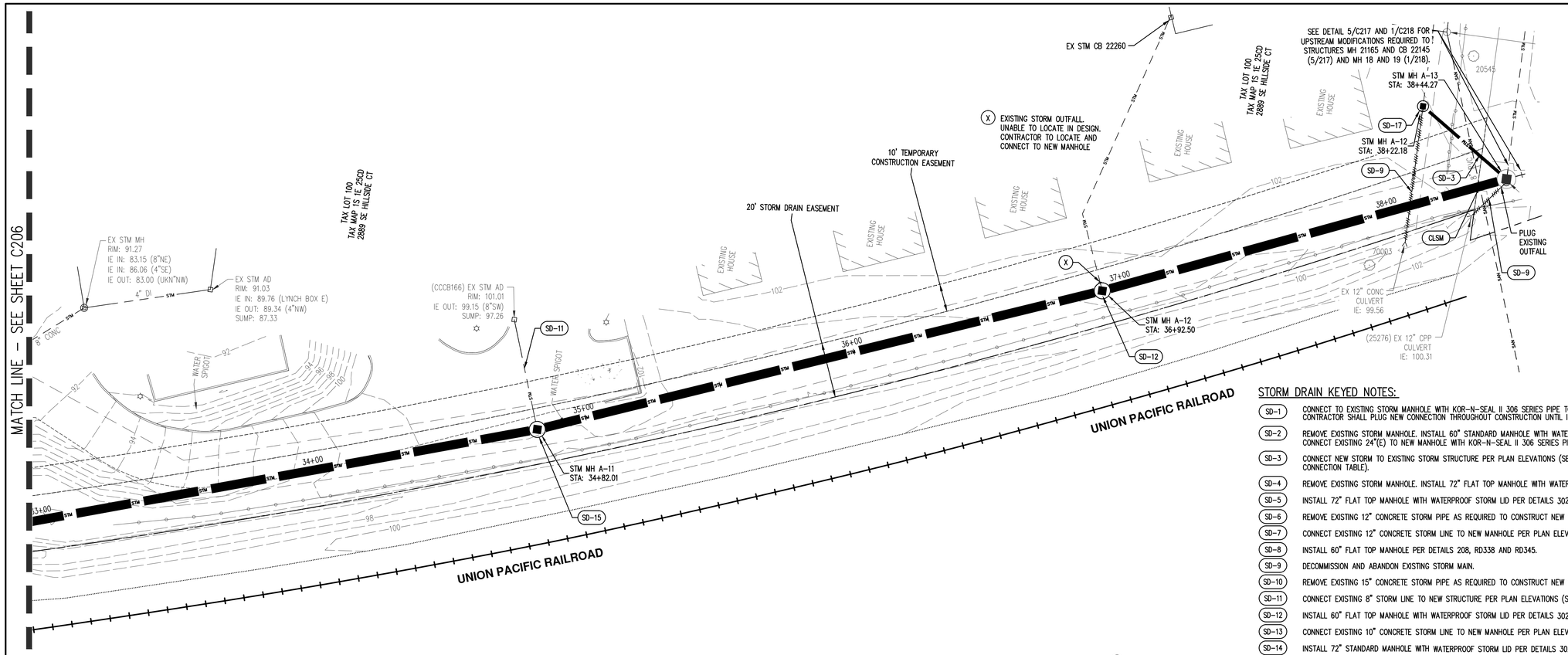
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET C206

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C206



STORM DRAIN KEYED NOTES:

- SD-1 CONNECT TO EXISTING STORM MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR. UTILIZE EXISTING KNOCKOUT. CONTRACTOR SHALL PLUG NEW CONNECTION THROUGHOUT CONSTRUCTION UNTIL IMPROVEMENTS ARE ACCEPTED BY THE CITY.
- SD-2 REMOVE EXISTING STORM MANHOLE. INSTALL 60" STANDARD MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345. CONNECT EXISTING 24"(E) TO NEW MANHOLE WITH KOR-N-SEAL II 306 SERIES PIPE TO MANHOLE CONNECTOR (SEE STORM A PROFILE).
- SD-3 CONNECT NEW STORM TO EXISTING STORM STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE AND STORM STRUCTURE CONNECTION TABLE).
- SD-4 REMOVE EXISTING STORM MANHOLE. INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-5 INSTALL 72" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-6 REMOVE EXISTING 12" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON IN-PLACE, REMAINING PORTIONS.
- SD-7 CONNECT EXISTING 12" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-8 INSTALL 60" FLAT TOP MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-9 DECOMMISSION AND ABANDON EXISTING STORM MAIN.
- SD-10 REMOVE EXISTING 15" CONCRETE STORM PIPE AS REQUIRED TO CONSTRUCT NEW STORM MAIN. ABANDON IN PLACE, REMAINING PORTIONS.
- SD-11 CONNECT EXISTING 8" STORM LINE TO NEW STRUCTURE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
- SD-12 INSTALL 60" FLAT TOP MANHOLE WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-13 CONNECT EXISTING 10" CONCRETE STORM LINE TO NEW MANHOLE PER PLAN ELEVATIONS (SEE STORM A PROFILE).
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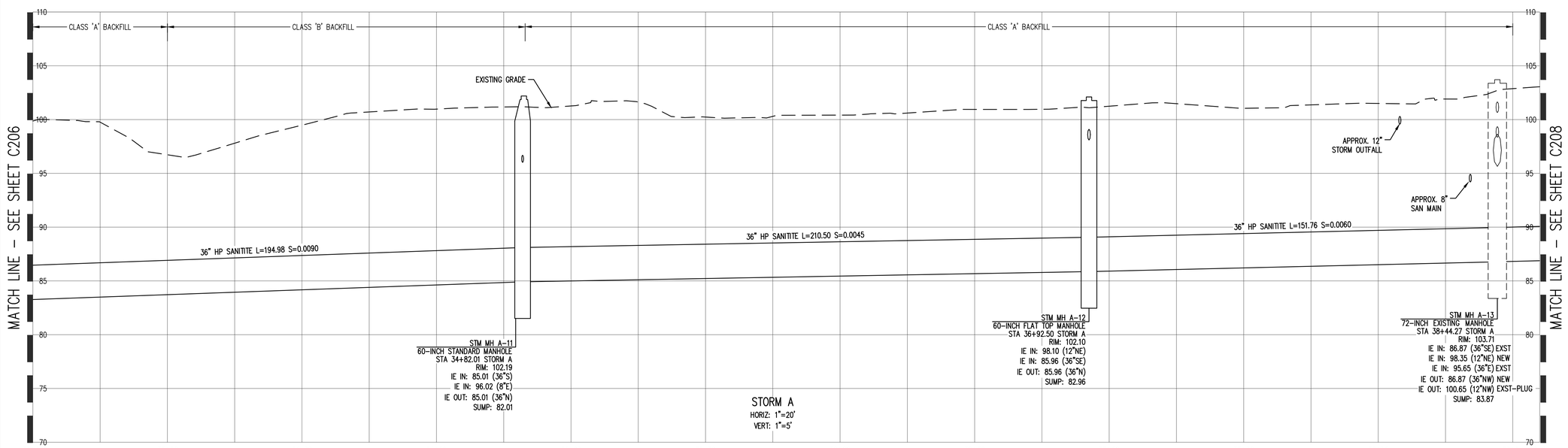
- SD-16 INSTALL 72" STANDARD MANHOLE OVER EXISTING 18" MAIN PER DETAILS 208, RD338 AND RD345.
- SD-17 INSTALL 48" STANDARD MANHOLE OVER EXISTING 12" MAIN WITH WATERPROOF STORM LID PER DETAILS 302, RD338 AND RD345.
- SD-18 INSTALL 60" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.
- SD-19 INSTALL 60" STORM SEWER POLLUTION CONTROL MANHOLE PER DETAILS 208, RD336, RD340 AND RD345.
- SD-20 INSTALL 72" STANDARD MANHOLE PER DETAILS 208, RD338 AND RD345.

STORM STRUCTURE CONNECTION TABLE

STRUCTURE	MAINTAIN/REPLACE/NEW STRUCTURE	RIM	MAINTAIN/REPLACE/NEW PIPE	IE OUT	SUMP	PIPE	SLOPE	LENGTH	DS MH	STATION & OFFSET	ALIGNMENT
EX STM CB CCCB166	MAINTAIN	101.01	MAINTAIN	99.15	1.89'	8"	0.0831	39.76 LF	STM MH A-11	34+83.36 39.74 L	STORM A
STM MH A-12	Standard	103.77	Standard	98.77	3.00'	12" HDPE	0.0105	40.09 LF	STM MH A-13	38+22.18 33.46 L	STORM A

GENERAL KEYED NOTES:

- P CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. PROVIDE ENGINEER WITH HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- CLSM BACKFILL UTILITY CROSSING WITH CONTROLLED LOW STRENGTH MATERIAL PER DETAIL ON SHEET C217.



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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (33+00 - 38+50) - PLAN AND PROFILE

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

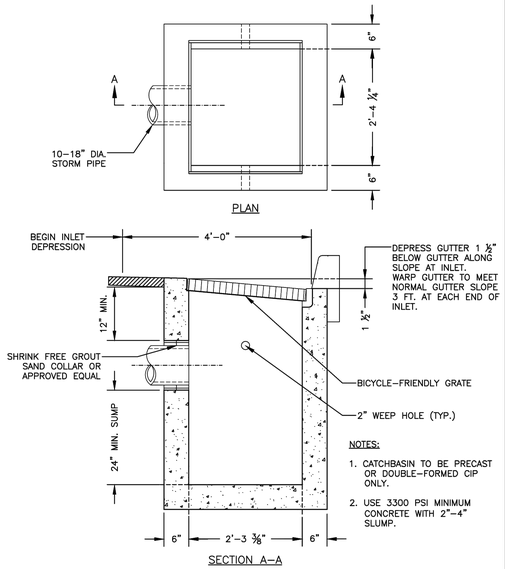
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C207

AKS DRAWING FILE: 5122 C200 STM PLAN AND PROFILE.DWG | LAYOUT: C207



NOTES:

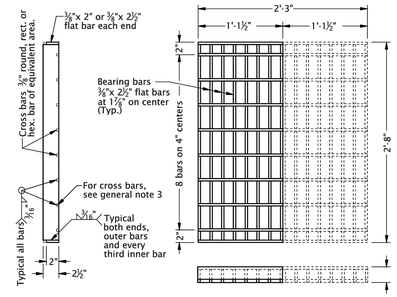
1. CATCHBASIN TO BE PRECAST OR DOUBLE-FORMED CIP ONLY.
2. USE 3300 PSI MINIMUM CONCRETE WITH 2"-4" SLUMP.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

G-2 Catchbasin — DRAWING NO. 201

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
1	ADJUST MIN. PIPE SIZE, FORMATTING	12/10	MCP
2	RENUMBERED DRAWING	11/18	TAP
3	RENUMBERED DRAWING	08/19	TAP



G-2 GRATE (TYPE 2)

(Bicycle-safe)
(2 grates required per inlet, as shown)

NOTES:

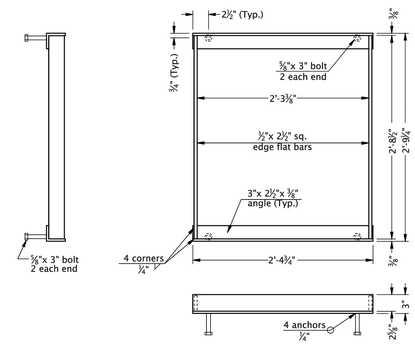
1. FOR INLET DETAILS, SEE APPROPRIATE INLET STANDARD DRAWING (S).
2. ⅜" CROSS BARS MUST BE FLUSH WITH THE TOP OF GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.
3. HOT DIP GALVANIZE AFTER FABRICATION.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

G-2 Catchbasin Grate — DRAWING NO. 204

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
1	RECREATED DRAWING	12/10	MCP
2	DRAWING RENUMBERED	11/18	TAP
3	DRAWING RENUMBERED, NOTE CHANGED	08/19	TAP



G-2 FRAME

NOTES:

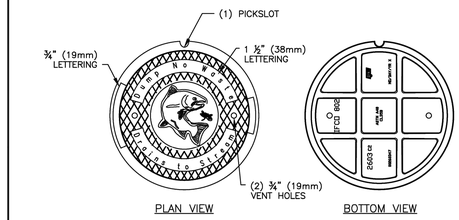
1. FOR INLET DETAILS, SEE APPROPRIATE INLET STANDARD DRAWING (S).
2. ⅜" CROSS BARS MUST BE FLUSH WITH THE TOP OF GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.
3. HOT DIP GALVANIZE AFTER FABRICATION.

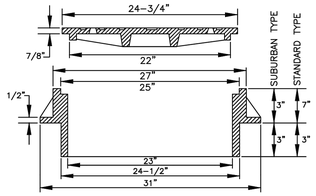
CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

G-2 Catchbasin Frame — DRAWING NO. 205

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
1	RECREATED DRAWING	12/10	MCP
2	DRAWING RENUMBERED	11/18	TAP
3	DRAWING RENUMBERED, NOTE CHANGED	08/19	TAP





NOTES:

1. USE SUBURBAN TYPE ONLY IN NON-TRAFFIC AREAS, AND ONLY WITH APPROVAL BY THE CITY.
2. COVER AND FRAME TO BE GRAY CAST IRON ASTM A-48 CLASS 30.
3. COVER AND FRAME TO BE MACHINED TO A TRUE BEARING ALL AROUND.
4. NOTCH LID FOR LIFTING HOOK.

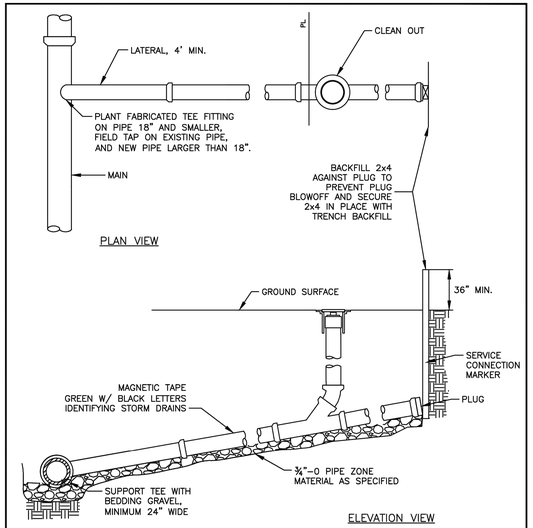
LIDS MAY BE PURCHASED FROM THE CITY OR THE MANUFACTURER

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Storm Manhole Frame and Lid — DRAWING NO. 208

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
3	CHANGED LID DETAIL	12/12	MTC
4	CHANGED DRAWING NUMBER	11/18	TAP
5	RENUMBERED DRAWING, NOTE CHANGED	08/19	TAP



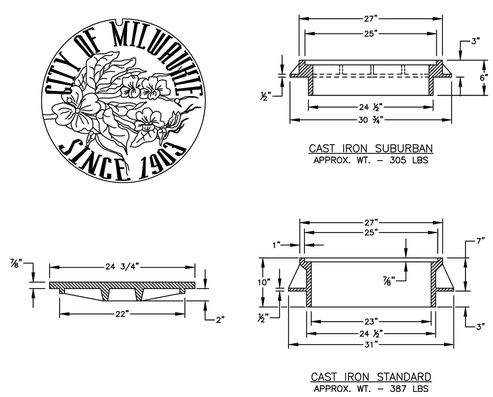
NOTE: HOUSE SERVICE LATERALS MAY BE CONNECTED TO MAIN TRUNK ONLY IF TRUNK LINE OUTFALLS TO A REGIONAL WATER QUALITY FACILITY. THE CONNECTION WILL BE REVIEWED AND APPROVED BY THE CITY ENGINEER.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Storm Lateral Connection — DRAWING NO. 210

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
2	CHANGED DRAWING NUMBER	12/12	MTC
3	CHANGED DRAWING NUMBER	11/18	TAP
4	RENUMBERED DRAWING, NOTE CHANGED	08/19	TAP



NOTES:

1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. MATERIAL TO BE GREY CAST IRON ASTM A-48 CLASS 30.
3. SUBURBAN FRAMES ARE ONLY AUTHORIZED TO BE USED IN NON-VEHICULAR AREAS.

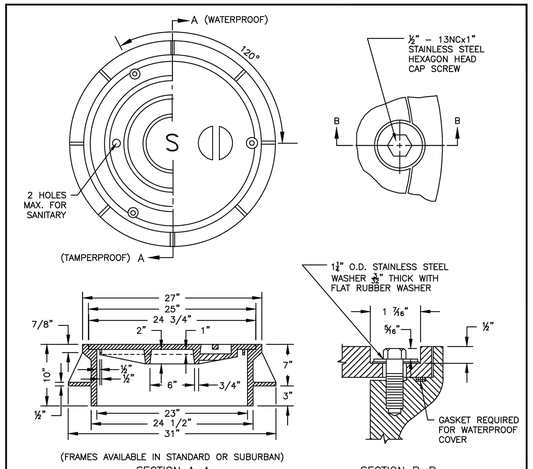
LIDS MAY BE PURCHASED FROM THE CITY OR THE MANUFACTURER

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Sanitary Sewer Manhole Frame and Cover — DRAWING NO. 301

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
3	DRAWING NO. CHANGE, PURCHASING NOTE	12/12	MCP
4	DRAWING NO. CHANGE	11/18	TAP
5	NOTE CHANGED	08/19	TAP



(FRAMES AVAILABLE IN STANDARD OR SUBURBAN)

SECTION A–A

SECTION B–B

NOTES:

1. TAMPER PROOF COVERS REQUIRED ON SANITARY OR STORM MANHOLES LOCATED WITHIN UNIMPROVED EASEMENTS AND RIGHT-OF-WAY.
2. WATER TIGHT COVERS REQUIRED IF LOCATED WHERE COVER MAY BE SUBMERGED.
3. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
4. MATERIAL TO BE GREY CAST IRON ASTM A-48 CLASS 30.

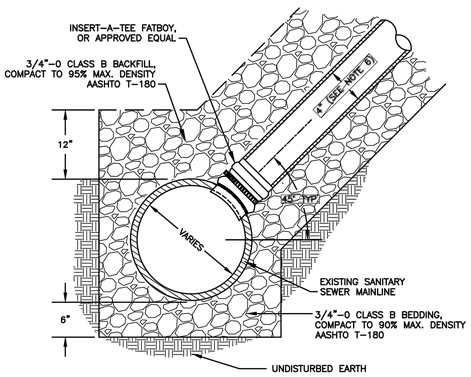
LIDS MAY BE PURCHASED FROM THE CITY OR THE MANUFACTURER

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Waterproof and Tamperproof Frame and Cover — DRAWING NO. 302

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
3	DRAWING NO. CHANGE, PURCHASING NOTE	12/12	MCP
4	DRAWING NO. CHANGE	11/18	TAP
5	NOTE CHANGED	08/19	TAP



NOTES:

1. THE SEWER TAP MUST NOT BE MADE EXCEPT IN THE PRESENCE OF A CITY INSPECTOR NOR SHALL ANY CONNECTION BE MADE WITHOUT CITY APPROVAL.
2. HOLE IN MAIN TO BE MACHINE DRILLED AND CORED.
3. AN INSERT-A-TEE FATBOY OR APPROVED EQUAL TO BE USED. HDPE ELECTROFUSION TEE OR WYE IS REQUIRED ON HDPE SANITARY SEWER MAINLINES.
4. SEWER TAP TO BE ABOVE SPRINGLINE.
5. 4" MAXIMUM TAP FOR 8" MAIN WITH APPROVED COUPLERS (CUT-IN TEE TO BE USED FOR 6" HOUSE BRANCH ON 8" MAIN)
6. 4" HOUSE BRANCH MAY BE USED FOR SINGLE FAMILY LOTS ONLY.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Sanitary Sewer Connection — DRAWING NO. 304

APPROVED 01/2021 — CITY ENGINEER — DATE

NO.	REVISIONS	DATE	BY
4	ADDED INSERT-A-TEE, ADDED HDPE NOTES	12/12	MCP
5	DRAWING NO. CHANGE	11/18	TAP
6	TITLE AND NOTE CHANGED	08/19	TAP

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON

CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

CONSTRUCTION DETAILS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE — OREGON — JUNE 29, 2007 — JOHN P. CHRISTIANSEN

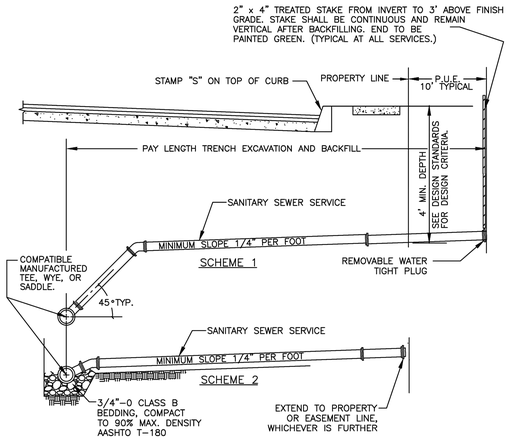
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET **C214**

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C214



NOTES:

1. SCHEME AND DEPTH FOR HOUSE SERVICE TO BE DETERMINED IN THE FIELD BY ENGINEER.
2. SERVICE MUST NOT BE BACKFILLED PRIOR TO INSPECTION.
3. INSTALL TRACER WIRE (GREEN, 18 GAUGE, INSULATED COPPER) FROM MAINLINE TO SURFACE AT 2" x 4" STAKE.
4. ALL FITTINGS TO BE PRE-FORMED AND GASKETED.

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Sanitary Sewer Service Branch

DRAWING NO. 305

APPROVED 01/2021 CITY ENGINEER DATE

NO.	REVISIONS	DATE	BY
3	CHANGED WORDING ON NOTES	12/13	MCP
4	DRAWING NO. CHANGE	11/18	TAP
5	TITLE CHANGE, NOTES CHANGED	08/19	TAP

DET1300 02-AUG-2013 det1300.dgn

(For details not shown, see drg. nos. RD340 & RD346)

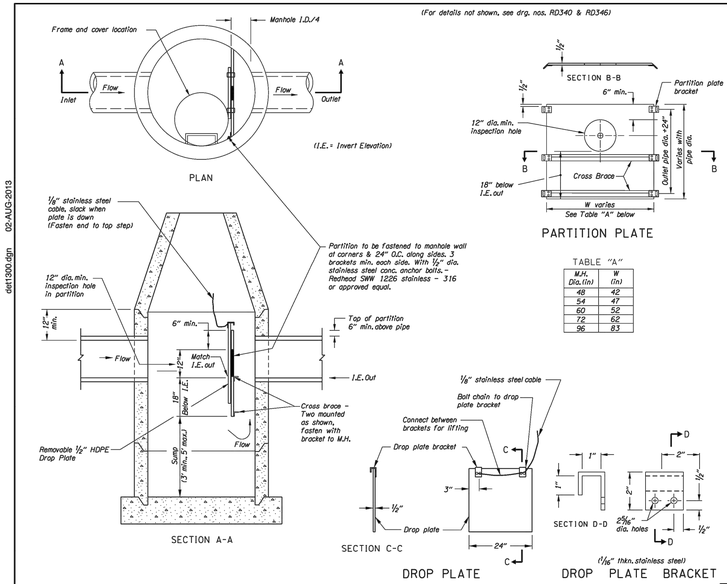


TABLE "A"

M.H. Dia.(in)	W (in)
48	42
54	47
60	52
72	62
96	83

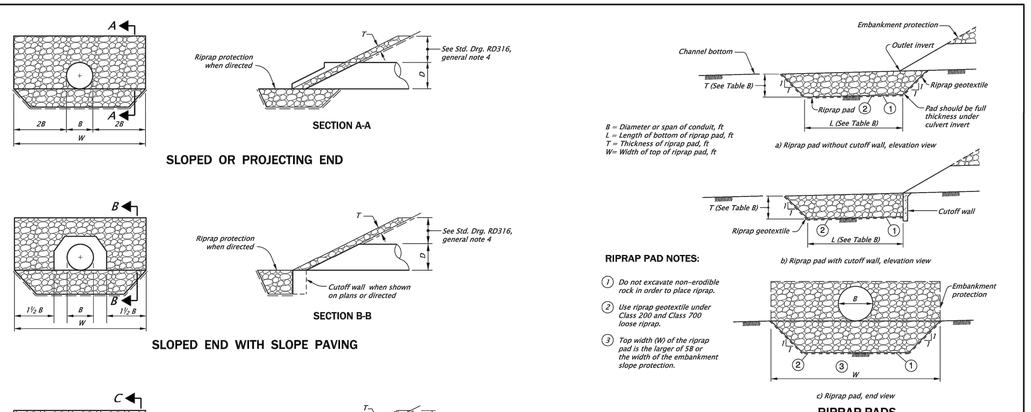
GENERAL NOTES FOR ALL DETAILS:

1. Hardware, fasteners and anchors to be stainless steel; use 1/8" stainless steel cable.
2. See pipe data sheet and plan sheets for pipe size(s).
3. See pipe data sheet and plan sheets for manhole size(s).
4. See pipe data sheet and plan sheets for sump depth.
5. Removable drop plate and partition to be constructed of High Density Polyethelene (HDPE) 1/2" thick ASTM D1248-78 and installed prior to manhole cone or top.
6. Manhole and pipe connection details per manhole standard drawings.
7. Cross brace L 2 1/2" x 1 1/2" x 3/16" hot dip galvanize, ASTM A-123. Two per partition plate - Full width. Fasten to partition with stainless bolt, nut & washer at 18" ctrs. Fasten to M.H. at ends using partition plate brackets.
8. Hardware, fasteners, anchors, fittings, appurtenances, labor and equipment is incidental to sedimentation manhole item.

The selection and use of this detail, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES
DETAILS

SEDIMENTATION MANHOLE — DETAIL NO. DET1300



RIPRAP PAD NOTES:

1. Do not excavate non-erodible rock in order to place riprap.
2. Use riprap geotextile under Class 200 and Class 700 loose riprap.
3. Top width (W) of the riprap pad is the larger of 5B or the width of the embankment slope protection.

TABLE A - Embankment Slope Protection

Riprap Class	T Distance
50	12 Inches
100	18 Inches
200	24 Inches *
700	36 Inches *

* Riprap geotextile required between riprap and embankment

TABLE B - Riprap Pad Dimensions

Riprap Class	L * (ft)	T (ft)
50	48 or 1.3	2.3
100	48 or 1.6	3.3
200	48 or 2.0	4.3
700	48 or 3.3	5.6

* L is the greater of 48 or the listed dimension.

GENERAL NOTES FOR ALL DETAILS:

1. See Std. Drg's. RD300 & RD304 for installation details.
2. Open ends of pipes normally require a site specific design, and may require special treatment (sloped ends, culvert embankment protection, paved end slopes, safety end sections, or other measures). See special details or Standard Drawings as called for on plans.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

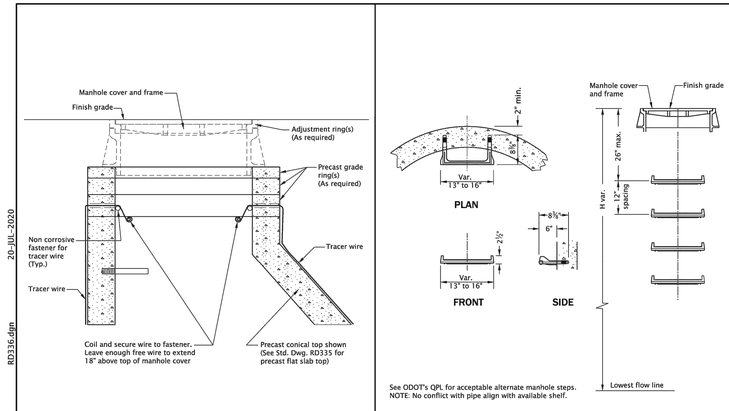
OREGON STANDARD DRAWINGS
CULVERT EMBANKMENT PROTECTION AND RIPRAP PADS
2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SDR DATE 30-JUN-2022 RD317

Effective Date: June 1, 2023 - November 30, 2023

RD317.dgn 30-JUN-2022



GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All precast products shall conform to requirements of ASTM C478.
2. Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
3. See Std. Dwg. RD345 for pipe to manhole connections.
4. See Std. Dwg. RD344 for manhole base section.
5. Adjust 24" maximum.
6. All connecting pipes shall have a tracer wire, or approved alternate. Place tracer wire directly over pipe centerline and on top of the pipe zone material.
7. Steps shall conform to requirements of ASTM C478. When H=42" or less omit steps. See Detail "C" for alignment of steps, and manhole cover and frame.
8. See Std. Dwg. RD335 for details not shown.
9. See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
10. Max. pipe diameter varies with pipe material.
11. See Std. Dwg. RD342 for shallow manholes.
12. See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS
STANDARD MANHOLE DETAILS
2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SDR DATE 15-JAN-2019 RD336

Effective Date: June 1, 2023 - November 30, 2023

RD336.dgn 20-JUL-2020

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION
MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

CONSTRUCTION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

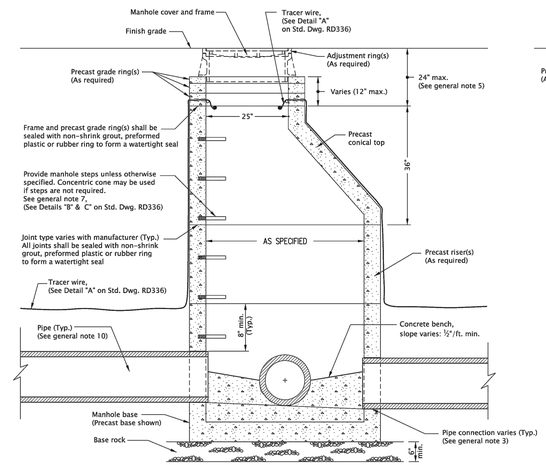
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

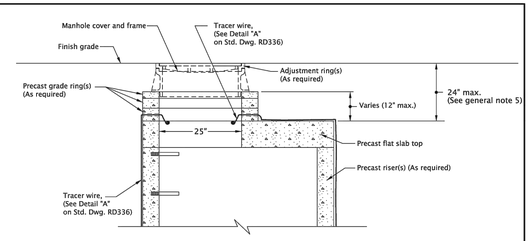
JOB NUMBER 5122

SHEET C215

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C215



MANHOLE WITH PRECAST CONICAL TOP



MANHOLE WITH PRECAST FLAT SLAB TOP

MODIFY TO EXCLUDE MANHOLE STEPS PER CITY OF MILWAUKIE PUBLIC WORKS STANDARDS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All precast products shall conform to requirements of ASTM C478.
2. Standard precast manhole section diameter shall be 48". Use 42" if specified by the Engineer.
3. See Std. Dwg. RD345 for pipe to manhole connections.
4. See Std. Dwg. RD344 for manhole base section.
5. Adjust 24" maximum.
6. All connecting pipes shall have a tracer wire, or approved alternate.
7. See Std. Dwg. RD336 for manhole steps.
8. See Std. Dwg. RD336 for details not shown.
9. See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.
10. Max. pipe diameter varies with pipe material.
11. See Std. Dwg. RD342 for shallow manholes.
12. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
13. This detail limited to interior drop of 24". See Std. Dwgs. RD350 or RD352 for drop manhole details for drops in excess of 24".

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

STANDARD SANITARY SEWER MANHOLE

2021

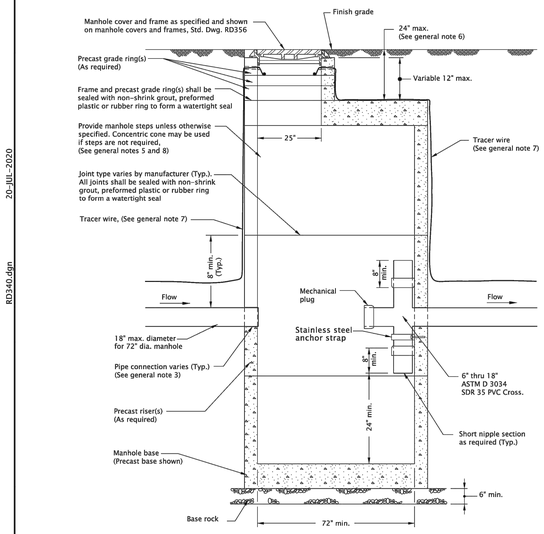
DATE	REVISION DESCRIPTION

CALC. BOOK NO. - - - N/A - - - SDR DATE 23-JUN-2019 **RD338**

Effective Date: June 1, 2023 - November 30, 2023

20-JUL-2020

RD338.dgn



MODIFY TO EXCLUDE MANHOLE STEPS PER CITY OF MILWAUKIE PUBLIC WORKS STANDARDS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All precast products shall conform to requirements of ASTM C478.
2. Standard precast manhole section diameter shall be 72".
3. See Std. Dwg. RD345 for pipe to manhole connections.
4. See Std. Dwg. RD344 for manhole base section, for details not shown.
5. See Std. Dwg. RD336 for manhole steps details, and flat slab top orientation.
6. Adjust 24" max.
7. See Std. Dwg. RD336 for tracer wire details.
8. See Std. Dwg. RD336 for manhole steps.
9. Max. pipe diameter varies with pipe material.
10. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

STORM SEWER POLLUTION CONTROL MANHOLE

2021

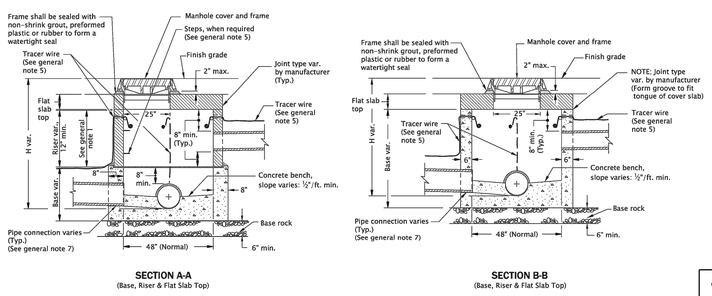
DATE	REVISION DESCRIPTION

CALC. BOOK NO. - - - N/A - - - SDR DATE 16-JAN-2019 **RD340**

Effective Date: June 1, 2023 - November 30, 2023

20-JUL-2020

RD340.dgn



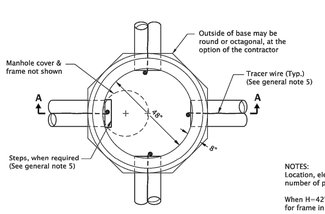
SECTION A-A
(Base, Riser & Flat Slab Top)

SECTION B-B
(Base, Riser & Flat Slab Top)

LEGEND
(See general note 3)

- Cast-in-Place concrete
- Precast concrete
- 1: 2 cement mortar
- Sewer pipe

MODIFY TO EXCLUDE MANHOLE STEPS PER CITY OF MILWAUKIE PUBLIC WORKS STANDARDS

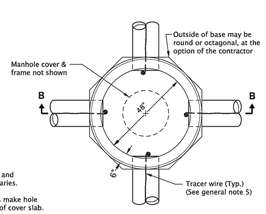


TOP VIEW
(Base, Riser & Flat Slab Top)

NOTES:
Location, elevation, and number of pipe(s) varies.

When H=42" or less make hole for frame in center of cover slab.

When H=42" or less omit steps.



TOP VIEW
(Base & Flat Slab Top)

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Minimum length if laterals or connections are inserted: outside diameter of pipe + 17".
2. Use Section B-B when length of riser becomes less than minimum shown.
3. Base may be precast or cast-in-place.
4. All precast products shall conform to the requirements of ASTM C478.
5. See Std. Dwg. RD336 for details not shown.
6. See Std. Dwg. RD344 for manhole base section.
7. See Std. Dwg. RD345 for pipe to manhole connections.
8. See Std. Dwg. RD356 for manhole covers and frames.
9. All concrete shall be commercial grade concrete.
10. Max. pipe diameter varies with pipe material.
11. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

SHALLOW MANHOLES

2021

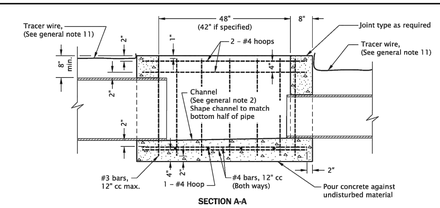
DATE	REVISION DESCRIPTION

CALC. BOOK NO. - - - N/A - - - SDR DATE 23-JUL-2015 **RD342**

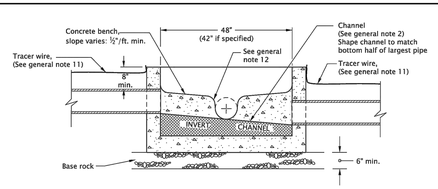
Effective Date: June 1, 2023 - November 30, 2023

20-JUL-2020

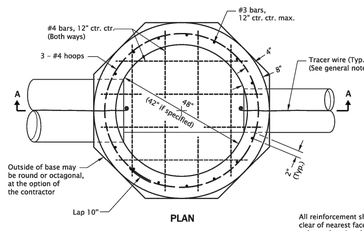
RD342.dgn



SECTION A-A

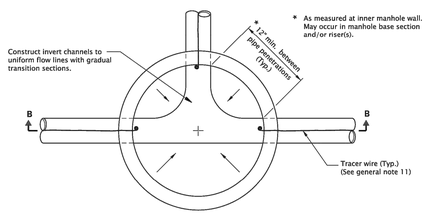


SECTION B-B



PLAN

All reinforcement shall be 2" clear of nearest face of conc., unless otherwise shown.



* As measured at inner manhole wall. May occur in manhole base section and/or riser(s).

PLAN

CAST IN PLACE MANHOLE BASE
(For invert channel details, see precast option at right)

PRECAST MANHOLE BASE

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All concrete shall be commercial grade concrete.
2. Channels shall be constructed to provide smooth slopes and radii to outlet pipe.
3. Bases may be precast or cast in place.
4. Max. pipe diameter varies with pipe material.
5. Use on 42" and 48" diameter manhole.
6. Extend pipe into manhole and grout smooth. Pipe(s) may extend 2" max. beyond the interior manhole wall.
7. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.
8. All precast products shall conform to the requirements of ASTM C478.
9. See Std. Dwg. RD345 for pipe to manhole connections.
10. See Std. Dwg. RD336 for manhole steps details.
11. See Std. Dwg. RD336 for tracer wire details.
12. At spring line of pipe, extend channel up to crown line on 12:1 batter.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

STANDARD MANHOLE BASE SECTION

2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. - - - N/A - - - SDR DATE 14-JUL-2014 **RD344**

Effective Date: June 1, 2023 - November 30, 2023

20-JUL-2020

RD344.dgn

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE **OREGON**
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

CONSTRUCTION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

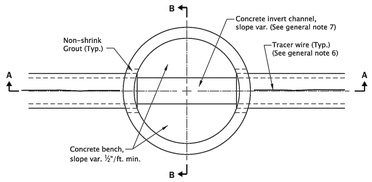
RENEWAL DATE: 12/31/23

REVISIONS

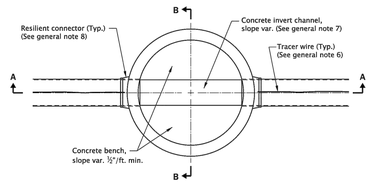
JOB NUMBER
5122

SHEET
C216

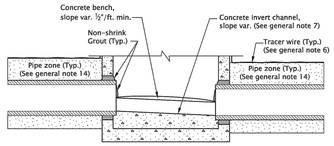
AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C216



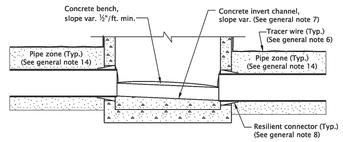
PLAN



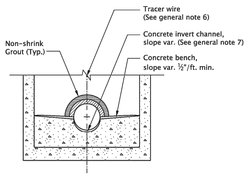
PLAN



SECTION A-A

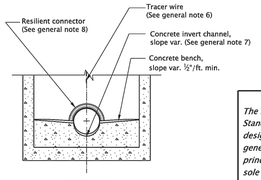


SECTION A-A



SECTION B-B

CONNECTION OF RIGID PIPE TO MANHOLE



SECTION B-B

CONNECTION OF FLEXIBLE PIPE TO MANHOLE

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. *All precast sections shall conform to requirements of ASTM C478.*
2. *Manhole base sections may be precast or cast-in-place.*
3. *All concrete shall be commercial grade concrete.*
4. *Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.*
5. *Maximum pipe diameter varies with pipe material.*
6. *All connecting pipes shall have a tracer wire, or approved alternate. See Std. Dwg. RD336 for tracer wire details.*
7. *Invert channels shall be constructed to provide smooth slopes and radii to outlet pipe.*
8. *When flexible pipe is used, install resilient connectors conforming to requirements of ASTM C923.*
9. *See Std. Dwgs. RD335, RD336, and RD338 for details not shown.*
10. *See Std. Dwg. RD336 for manhole steps details.*
11. *See Std. Dwg. RD342 for shallow manholes.*
12. *See Std. Dwg. RD344 for manhole base section.*
13. *See Std. Dwg. RD356 for manhole covers and frames, manhole adjustment rings, etc.*
14. *Pipe zone varies, see Std. Dwg. RD300.*

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

PIPE TO MANHOLE CONNECTIONS

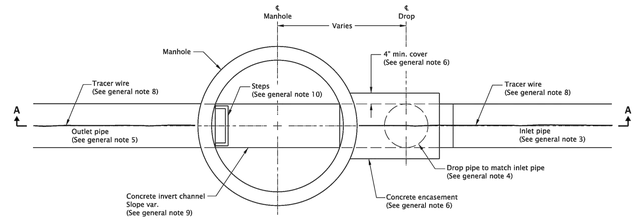
2021

DATE	REVISION DESCRIPTION
01-2023	REVISED DETAILS AND NOTES

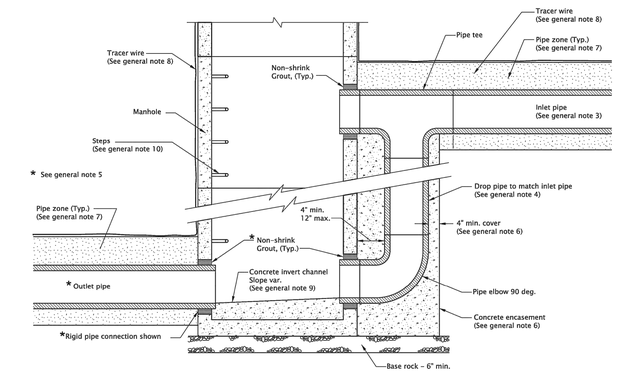
CALC. BOOK NO. N/A SOR DATE 20-JAN-2023 **RD345**

20-JAN-2023 RD345.dgn

Effective Date: June 1, 2023 - November 30, 2023



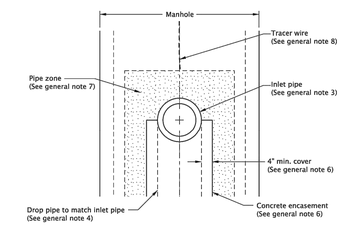
PLAN



SECTION A-A

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. See appropriate manhole standard drawings for details not shown.
2. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans. Only 1 outside drop pipe allowed per manhole. See project plans for pipe material.
3. Inlet pipe may be rigid or flexible, maximum diameter 18".
4. Drop pipe, tee, and elbow to match inlet pipe.
5. Rigid pipe connection shown. Outlet pipe(s) may be rigid or flexible, see project plans. Max. outlet pipe diameter varies with pipe material. See Std. Dwg. RD345 for pipe to manhole connections.
6. Concrete encasement shall be commercial grade concrete. Provide 4" minimum cover over outer most parts of pipe and fittings.
7. Pipe zone varies, see Std. Dwg. RD300.
8. All connecting pipes shall have a tracer wire, or approved alternate. See Std. Dwg. RD336 for tracer wire details.
9. Invert channels shall be constructed to provide smooth slopes and radii to outlet pipe.
10. See Std. Dwg. RD336 for manhole steps details.



END VIEW

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

OUTSIDE DROP MANHOLES

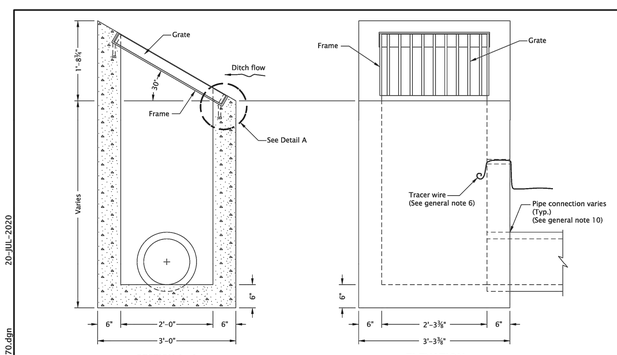
2021

DATE	REVISION DESCRIPTION
01-2023	REVISED DETAILS AND NOTES

CALC. BOOK NO. N/A SOR DATE 20-JAN-2023 **RD352**

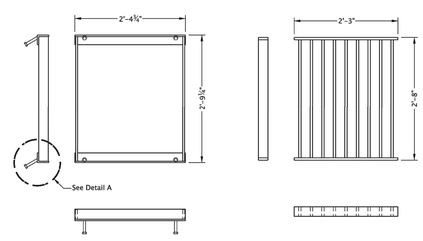
20-JAN-2023 RD352.dgn

Effective Date: June 1, 2023 - November 30, 2023



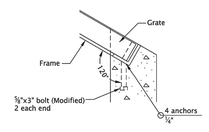
SECTION A - A

ELEVATION

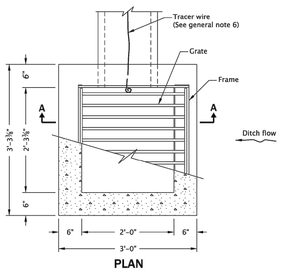


G-2 FRAME
(See general note 2)

G-2 GRATE (TYPE 1)
(See general note 2)



DETAIL A
(Anchor bolt modication, see general note 2)



PLAN

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. All concrete shall be commercial grade concrete.
2. For frame & grate details not shown, see Std. Dwg. RD365. Modify anchor bolt attachment to frame as shown in Detail A. G-2 (Type 2) grates may be used if approved by the engineer.
3. Catch basin, frame, and grates shall meet H20 loading.
4. Provide sump only when shown on plans, and allowed by jurisdiction. For sump details, see Std. Dwg. RD364.
5. ⅜" cross bars shall be flush with the grate surface and may be fillet welded, resistance welded or electroforged to bearing bars.
6. See Std. Dwg. RD336 for tracer wire details, or approved alternate.
7. Max. pipe diameter varies with pipe material.
8. Do not use in locations where inlet can be struck by an errant vehicle, or provide shielding of inlet.
9. Inlet base may be cast-in-place or precast. Where precast inlet base is used as an alternate, a 4" compacted leveling bed of sand or ¾"-0 crushed aggregate shall be provided. All precast inlets shall conform to requirements of ASTM C913.
10. See Std. Dwg. RD339 for pipe to structure connections.
11. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

DITCH INLET TYPE D

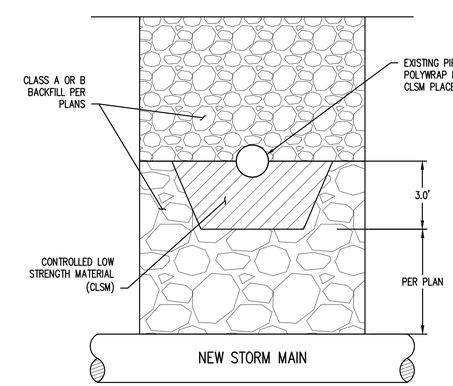
2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SOR DATE 21-JUL-2015 **RD370**

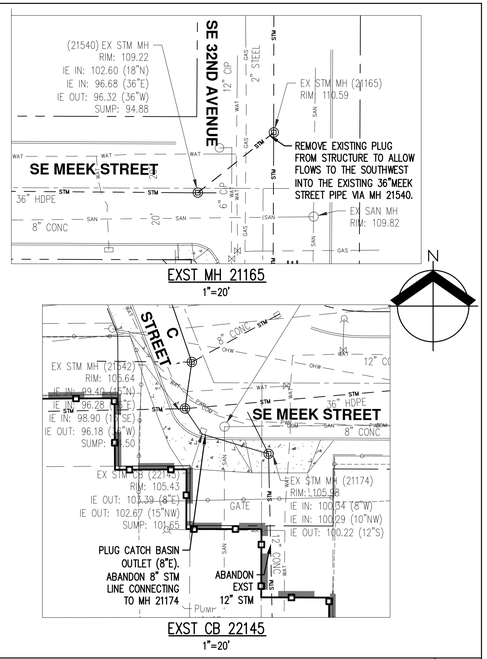
20-JUL-2020 RD370.dgn

Effective Date: June 1, 2023 - November 30, 2023



UTILITY CROSSING DETAIL
NTS

4 / C217



MODIFICATIONS TO EXISTING STRUCTURES
1"=20'

5 / C217

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON
CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

CONSTRUCTION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

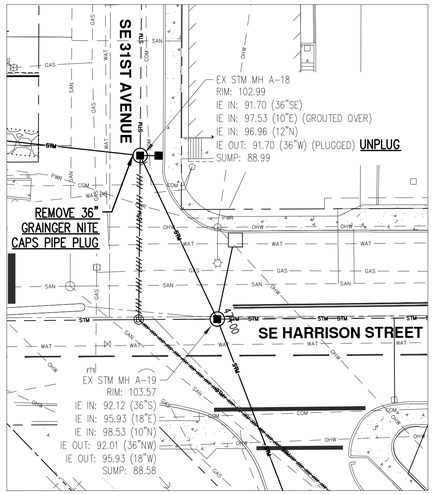
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C217

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C217



MODIFICATIONS TO EXISTING STRUCTURES

1"=20'

1
C218

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON

CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

CONSTRUCTION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2004
JOHN P. CHRISTIANSEN

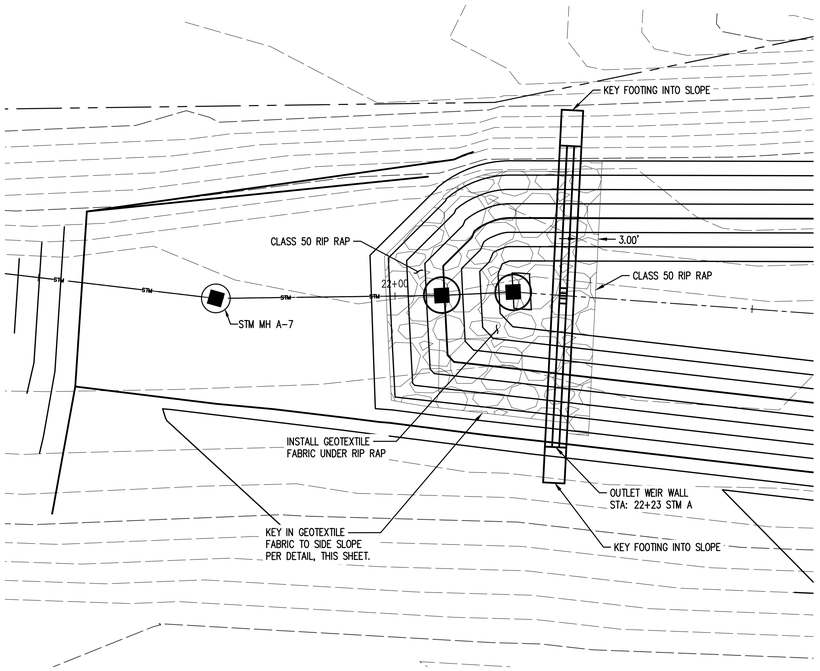
RENEWAL DATE: 12/31/23

REVISIONS

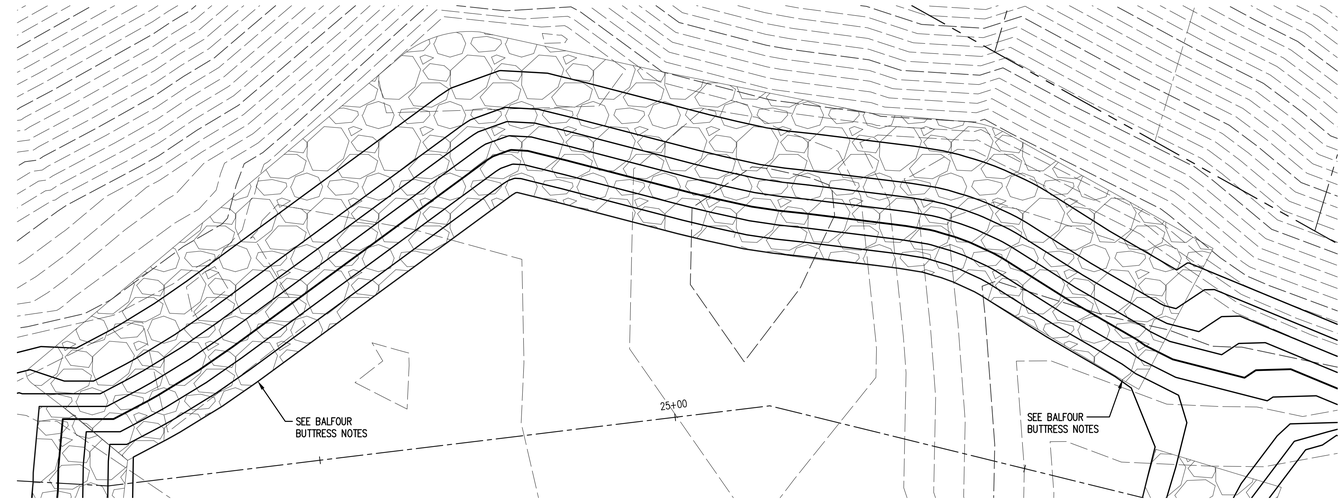
JOB NUMBER
5122

SHEET
C218

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C218



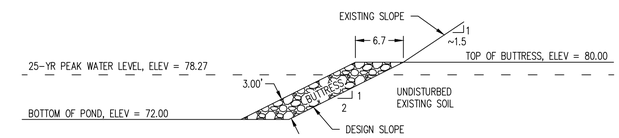
BALFOUR FACILITY OUTLET DETAIL
1"=10'



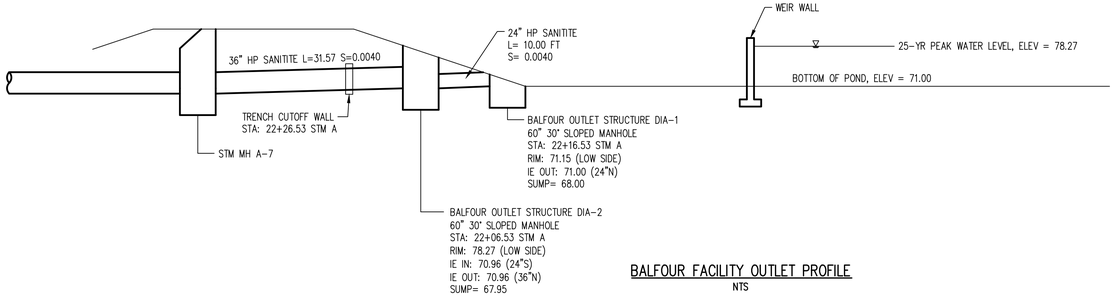
BALFOUR BUTTRESS DETAIL
1"=10'

BALFOUR BUTTRESS NOTES

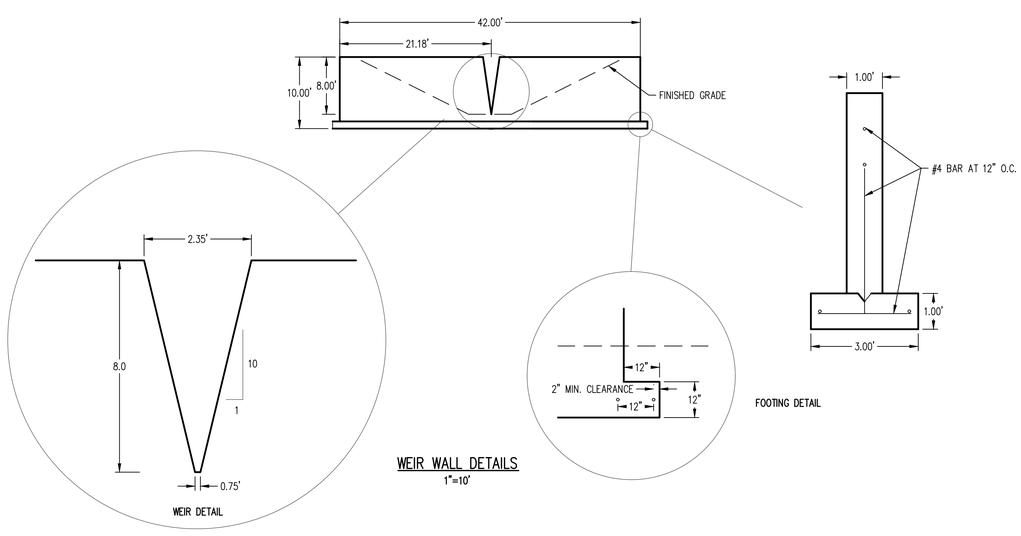
- 2-INCH MINUS DENSE AGGREGATE PER ODOT SECTION 2630.10
- COMPACTED TO 92% MAXIMUM DENSITY, AS DETERMINED BY ASTM D1557



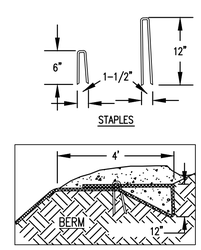
BALFOUR BUTTRESS SECTION DETAIL
1"=10'



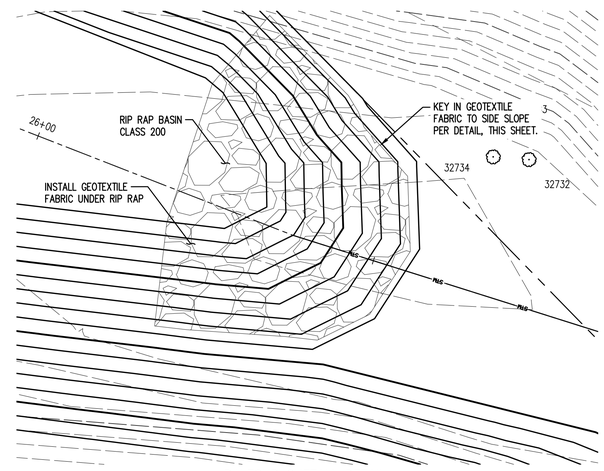
BALFOUR FACILITY OUTLET PROFILE
NTS



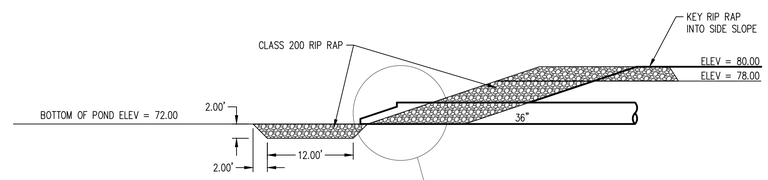
WEIR WALL DETAILS
1"=10'



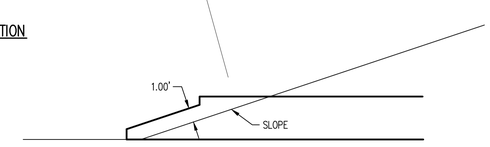
KEY IN GEOTEXTILE
TO SIDE SLOPE
NTS



BALFOUR OUTFALL DETAIL
1"=10'



BALFOUR OUTFALL DETAIL SECTION
1"=10'



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MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

BALFOUR FACILITY DETAILS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

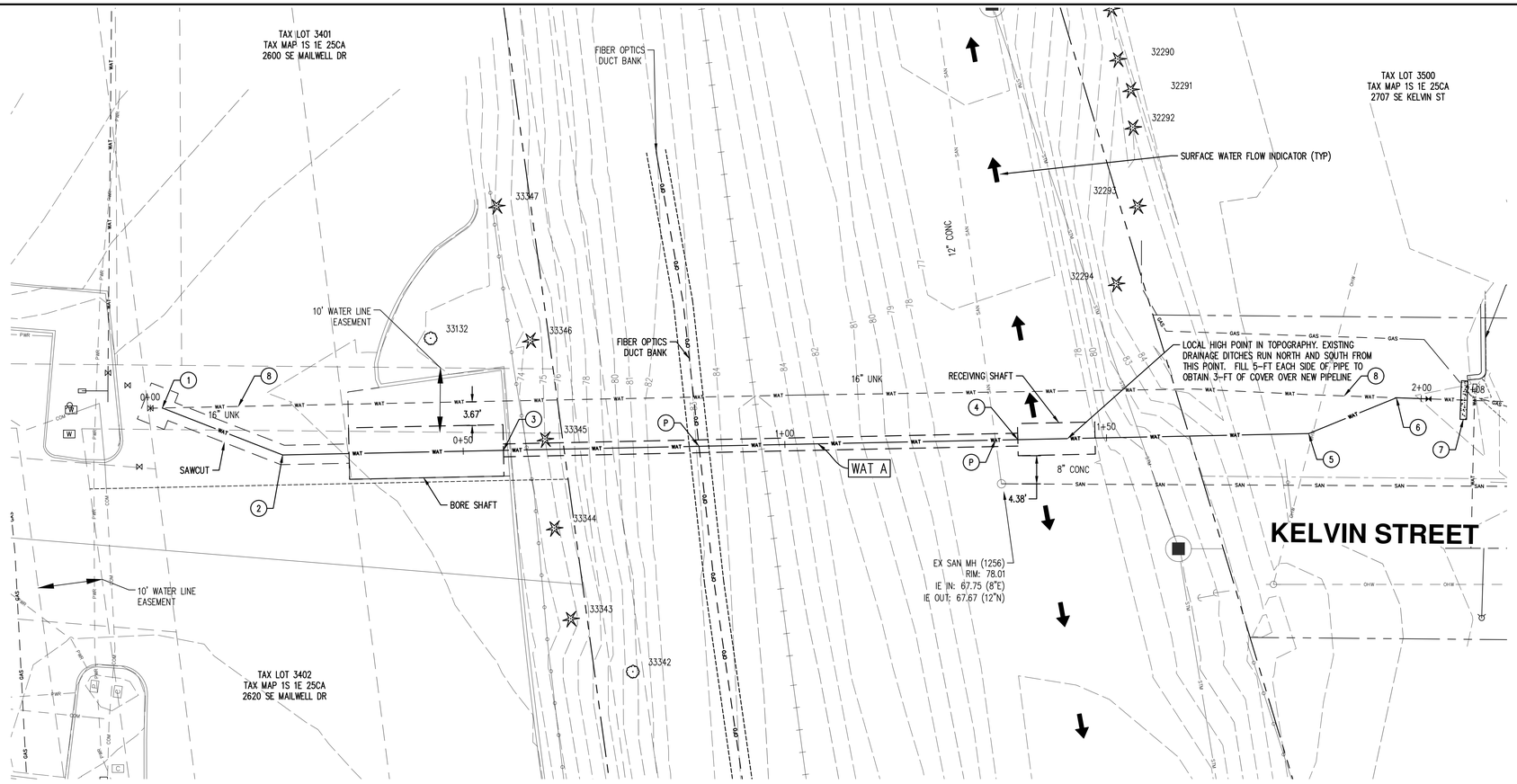
REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2009
JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

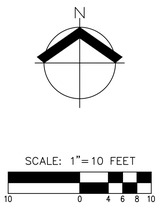
REVISIONS

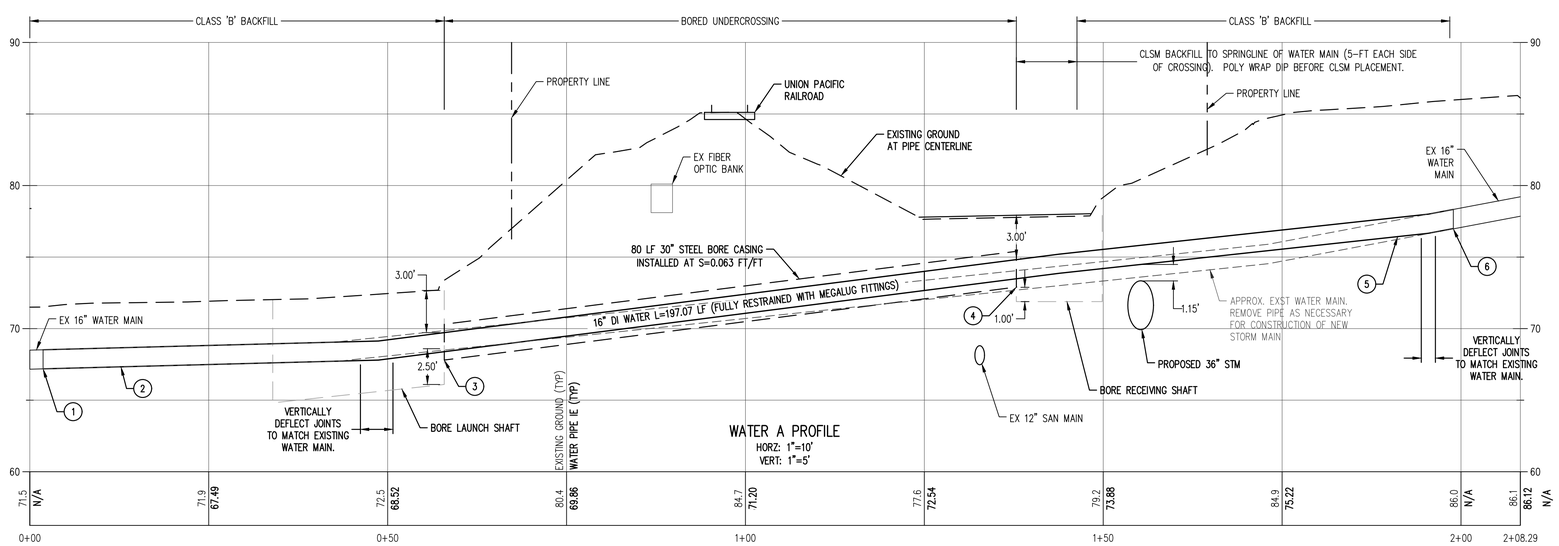
JOB NUMBER
5122

SHEET
C250

AKS DRAWING FILE: 5122 C250 BALFOUR DETAIL.DWG | LAYOUT: C250







WATER KEYED NOTES

P. CONTRACTOR TO POTHOLE LOCATION TO IDENTIFY POTENTIAL CONFLICTS WITH EXISTING UTILITIES. NOTIFY ENGINEER OF FINDINGS PRIOR TO PROCEEDING WITH CONSTRUCTION.

1. STA 0+01.85 WAT A
CONNECT TO EXISTING WATER MAIN (SHUT DOWN TIE-IN)
INSTALL 22.5° MJ BEND (LONG PATTERN) WITH THRUST BLOCK
IE: 67.19
POTHOLE CONNECTION POINT TO VERIFY EXISTING PIPE MATERIAL PRIOR TO ORDERING FITTING.

2. STA 0+21.94 WAT A
INSTALL 22.5° MJ BEND WITH THRUST BLOCK
IE: 67.33

3. STA 0+56.21 WAT A
BEGIN HORIZONTAL BORE CASING.
CONSTRUCT BORE LAUNCH SHAFT. APPROXIMATE SHAFT DIMENSIONS ARE 24'X8'X7.2'. SHORING IS REQUIRED PRIOR TO SHAFT EXCAVATION. SHAFT CONSTRUCTION SHALL BE IN CONFORMANCE WITH ACCEPTED INDUSTRY STANDARDS. ACTUAL SHAFT DIMENSIONS SHALL BE DETERMINED IN THE FIELD BASED ON SITE CONDITIONS AND INSTALLATION EQUIPMENT.
IE: 68.60

4. STA 1+36.21 WAT A
END HORIZONTAL BORE CASING.
CONSTRUCT BORE RECEPTION SHAFT. APPROXIMATE SHAFT DIMENSIONS ARE 12'X5'X6'. SHORING IS REQUIRED PRIOR TO OR IMMEDIATELY FOLLOWING SHAFT EXCAVATION. SHAFT CONSTRUCTION SHALL BE IN CONFORMANCE WITH ACCEPTED INDUSTRY STANDARDS. ACTUAL SHAFT DIMENSIONS SHALL BE DETERMINED IN THE FIELD BASED ON SITE CONDITIONS AND INSTALLATION EQUIPMENT.
IE: 72.89

5. STA 1+81.42 WAT A
INSTALL 22.5° MJ BEND WITH THRUST BLOCK
IE: 76.25

6. STA 1+96.15 WAT A
CONNECT TO EXISTING 16" WATER MAIN (SHUT DOWN TIE-IN)
INSTALL 22.5° MJ BEND (LONG PATTERN) WITH THRUST BLOCK
IE: 76.97
POTHOLE CONNECTION POINT TO VERIFY EXISTING PIPE MATERIAL PRIOR TO ORDERING FITTING.
INSTALL 16" BUTTERFLY VALVE (E)

7. STA 2+07.15 WAT A
INSTALL STRADDLE BLOCK ON EXISTING 16" CAST IRON MAIN. STRADDLE BLOCK SHALL BE 10-FT FROM POINT OF CONNECTION TO EXISTING MAIN. CONTRACTOR SHALL CONFIRM NO JOINTS EXIST ON EXISTING LINE BETWEEN STRADDLE BLOCK AND POINT OF CONNECTION. CONCRETE SHALL BE PLACED TO ALLOW FOR SUFFICIENT CURE TIME TO MEET DESIGN COMPRESSIVE STRENGTH PRIOR TO MODIFICATIONS TO EXISTING MAIN.

8. ABANDON EXISTING WATER MAIN IN-PLACE, GROUT FILL. REMOVE PIPE AS NECESSARY FOR CONSTRUCTION OF STORM MAIN.

GENERAL WATER NOTES:
1. FULLY RESTRAIN ALL JOINTS AND FITTINGS ALONG NEW WATER MAIN. JOINT RESTRAINT ON DI MJ FITTINGS SHALL BE EBAA IRONWORKS MEGALUG, OR EQUAL. JOINT RESTRAINT ON CAST IRON FITTINGS SHALL BE ROMAC GRIPRING, OR EQUAL.

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25DD, 11E36AB, 11E36AA, 11E25

WATER LINE REPLACEMENT

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

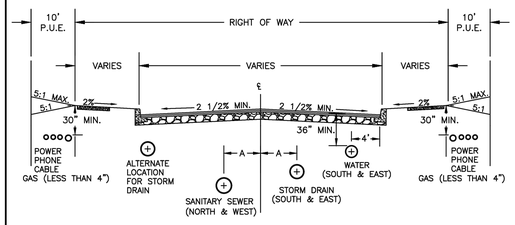
REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C300

AKS DRAWING FILE: 5122 C300 WATER LINE REPLACEMENT.DWG | LAYOUT: C300



NOTE: STREET TREES, LIGHT POLES, AND FIRE HYDRANTS MUST BE LOCATED BETWEEN THE SIDEWALK AND THE CURB.

STREET TYPE	RIGHT OF WAY (FT.)	NO. OF LANES	DISTANCE FROM CENTER "A"
LOCAL	40 FT	2	6 FT
LOCAL	50 FT	2	6 FT
COLLECTOR	60 FT	2	6 FT
COLLECTOR	70 FT	3	13 FT
ARTERIAL	80 FT	3	13 FT
COMMERCIAL & INDUSTRIAL	60 FT	2	6 FT
COMMERCIAL & INDUSTRIAL	60 FT	3	13 FT
COMMERCIAL & INDUSTRIAL	70 FT	3	13 FT
COMMERCIAL & INDUSTRIAL	70 FT	4	7 & 19 FT

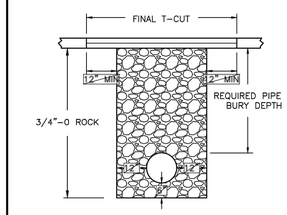
CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Utility Placement

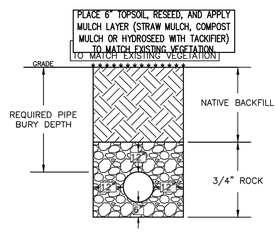
DRAWING NO. 509

APPROVED 01/2021
CITY ENGINEER DATE

NO.	REVISIONS	DATE	BY
1	DRAWING NUMBER CHANGED	12/10	MCP
2	DRAWING NUMBER CHANGED	11/16	TAP
3	DRAWING NUMBER AND NOTE CHANGED	06/18	TAP



TRENCH WITHIN PAVED AREAS



TRENCH OUTSIDE OF PAVED AREAS

ASPHALT REPLACEMENT DEPTH	
CLASSIFICATION	DEPTH (IN.) WHICHEVER IS GREATER
ARTERIAL/INDUSTRIAL	8 OR EXISTING
COLLECTOR	6 OR EXISTING
LOCAL	4 OR EXISTING

NOTES:

1. ADDITIONAL REPAIR IS REQUIRED FOR STREETS PAVED WITHIN THE LAST 5 YEARS. SEE STANDARD DETAIL NO. 511.
2. FINAL SAWCUTS MUST BE 6" WIDER THAN THE WIDTH OF THE ROLLER USED FOR COMPACTION
3. PAVING TO CONSIST OF LEVEL 3 ASPHALT CONCRETE AND BE PLACED IN LIFTS. EACH LIFT MUST HAVE A MAXIMUM DEPTH OF 3" & MINIMUM DEPTH OF 2".
4. INFRARED ASPHALT REPAIRS MAY BE REQUIRED AT THE DISCRETION OF THE CITY ENGINEER.
5. UNDERMINED, BROKEN OR CRACKED PAVEMENT EDGES MUST BE SAWCUT AND REMOVED AT THE DISCRETION OF THE CITY ENGINEER.
6. CONTROL DENSITY FILL (CDF) MAY BE REQUIRED AT CITY ENGINEER'S DISCRETION.
7. ALL ROCK AND BACKFILL TO BE COMPACTED TO 95% MAX. DENSITY AASHTO T180.

MODIFIED BY AKS

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Trench Patch

DRAWING NO. 510

APPROVED 01/2021
CITY ENGINEER DATE

NO.	REVISIONS	DATE	BY
3	ADDED T-CUT LANGUAGE	12/14	AJR
4	DRAWING NUMBER CHANGED	11/18	TAP
5	UPDATED NOTES, DRAWING NUMBER CHANGE	06/19	TAP

THRUST BLOCKING

20-JUL-2020

RD250.dgn

TABLE A

CONCRETE THRUST BLOCKING (HORIZONTAL)

PIPE DIA.	Table Pressure PSI	Thrust (T) at fittings in Pounds A: Tee & Dead Ends	B: 90 deg Bend	C: 45 deg Bend	D: 22.5 deg Bend	E: 11.25 deg Bend
4"	250	3035	4320	2315	1215	610
6"	250	6860	9735	5215	2720	1375
8"	250	12185	17310	9265	4835	2430
10"	250	19045	27045	14480	7560	3800
12"	250	27405	38940	20840	10880	5465
14"	250	37320	53010	28370	14815	7445
16"	250	48740	69245	37050	19360	9735

TABLE B

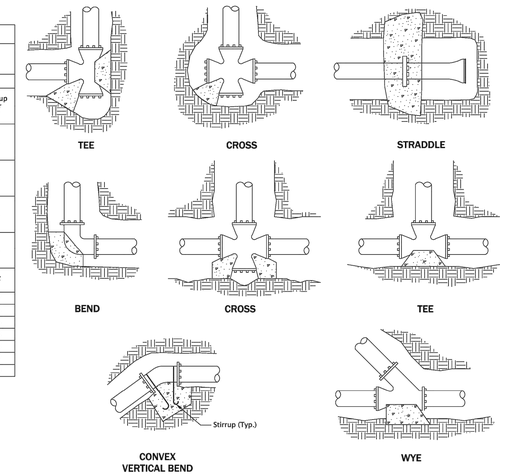
Soil Type	Soil Bearing Capacity (B) in PSF
Muck, peat, etc.	*0*
Soft Clay	*1000*
Sand	*2000*
Sand and gravel	*3000*
Sand and gravel cemented with clay	*4000*
Hard shale	*10,000*

TABLE C

CONCRETE BLOCKING FOR CONVEX VERTICAL BENDS

DIMENSION TABLE

PIPE DIA. in.	Table Pressure PSI	Bend Angle (deg)	Concrete Volume (cy)	Cube Size (ft)	Stirrup Dia. (in)	Stirrup Embmt. (in)	Stirrup Bar #
4"	250	11.25	0.21	1.8	⅝	17	5
		22.5	0.43	2.3			
		45	0.77	2.8			
6"	250	11.25	0.48	2.4	⅝	17	5
		22.5	0.95	3.0			
		45	1.79	3.6			
8"	250	11.25	0.86	2.9	⅝	17	5
		22.5	1.65	3.5			
		45	3.22	4.4			
10"	250	11.25	1.39	3.3	⅝	17	5
		22.5	2.62	4.1			
		45	4.97	4.1			
12"	250	11.25	1.94	3.7	⅝	17	5
		22.5	3.91	4.7			
		45	6.89	5.7	⅞	24	7
14"	250	11.25	2.62	4.1	⅝	17	5
		22.5	5.26	5.2	¾	20	6
		45	9.70	6.4	1	27	8
16"	250	11.25	3.44	4.5	⅝	17	5
		22.5	6.89	5.7	⅞	24	7
		45	12.63	7.0	1⅛	30	9



THRUST BLOCK BEARING AREA EQUATION

NOTE: WHEN THRUST BLOCK BEARING AREA IS NOT SPECIFIED ON THE PLANS OR DETERMINED BY THE ENGINEER, USE THE FOLLOWING PROCEDURE TO DETERMINE REQUIRED BEARING AREA.

1. Determine thrust (T) for type of fitting or joint and size of pipe from Table A.
2. Determine Design (Test) Pressure from Standard Specifications or Special Provisions.
3. Determine Table Pressure from Table A.
4. Determine Soil Bearing Capacity (B) of soil from Table B.
5. Determine required bearing area (A) in sq. ft. as follows:

$$\text{Thrust Block Bearing Area} = A = \left(\frac{T}{B}\right)\left(\frac{\text{Design (Test) Pressure}}{\text{Table Pressure}}\right)$$

Example: Design (Test) Pressure = 150 PSI
Pipe = 14"
Fitting = Tee
Soil = Sand

From Table A, T = 37320
From Table B, B = 2000

$$A = \left(\frac{37320}{2000}\right)\left(\frac{150}{250}\right) = 11.2 \text{ sq.ft.}$$

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Contractor to provide blocking adequate to withstand full test pressure.
2. Pour concrete blocking against undisturbed earth.
3. All concrete shall be commercial grade concrete.
4. Wrap pipe and/or fittings with 2 layers of polyethylene film where in contact with concrete
5. Keep concrete clear of all joints and accessories.
6. Stirrups shall be deformed galvanized cold rolled steel AASHTO M31 (ASTM A615), Grade 60. Coat with coal tar epoxy after installation.
7. See project plans for details not shown.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

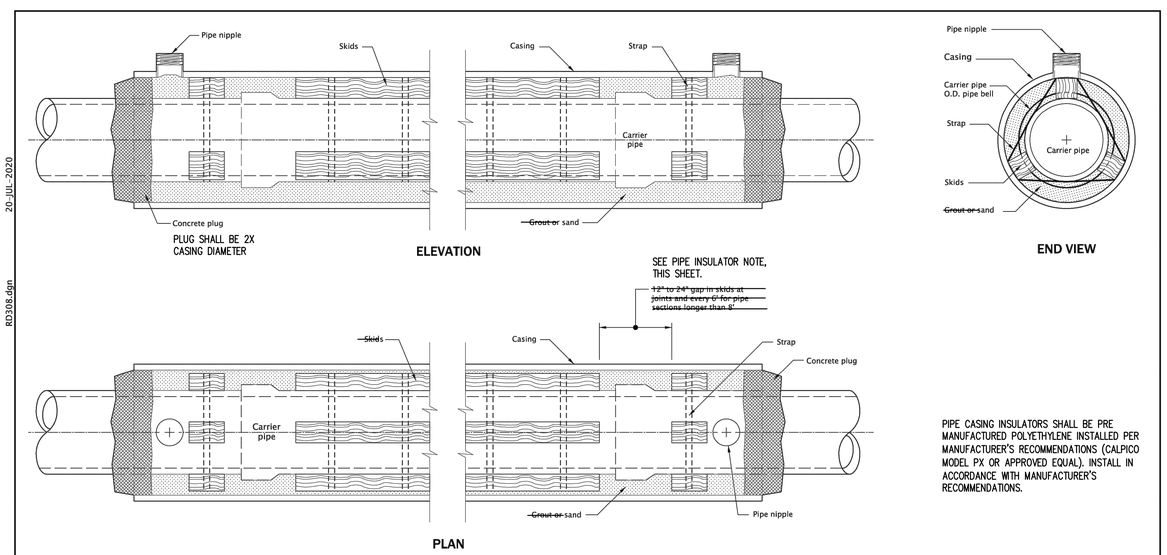
THRUST BLOCKING

2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SDR DATE 25-JUL-2017 **RD250**

Effective Date: June 1, 2023 – November 30, 2023



20-JUL-2020

RD308.dgn

PIPE CASING INSULATORS SHALL BE PRE MANUFACTURED POLYETHYLENE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS (CALPICO MODEL PX OR APPROVED EQUAL). INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Type, size, and location(s) of casing, carrier pipe, skids, straps, pipe nipples, etc., are as required by the Engineer to meet site conditions.
2. Plug ends of casing with commercial grade concrete.
3. Block carrier pipe down or flood to resist flotation when filling annular space.
4. Provide pipe nipple at top of casing at each end of casing, for filling and verifing filling operation. Size to accomodate volume of grout or sand and site conditions (4" diameter minimum).
5. Strap pressure treated wood or manufactured skids to pipe, 3 skids per pipe section. Skids to support full length of pipe except bell.
6. See Std. Dwg. RD336 for tracer wire details (When required).

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

BORE CASING DETAIL

2021

DATE	REVISION DESCRIPTION

CALC. BOOK NO. N/A SDR DATE ~~07-JAN-2013~~ **RD308**

Effective Date: June 1, 2023 – November 30, 2023

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

WATER LINE CONSTRUCTION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2004 JOHN P. CHRISTIANSEN

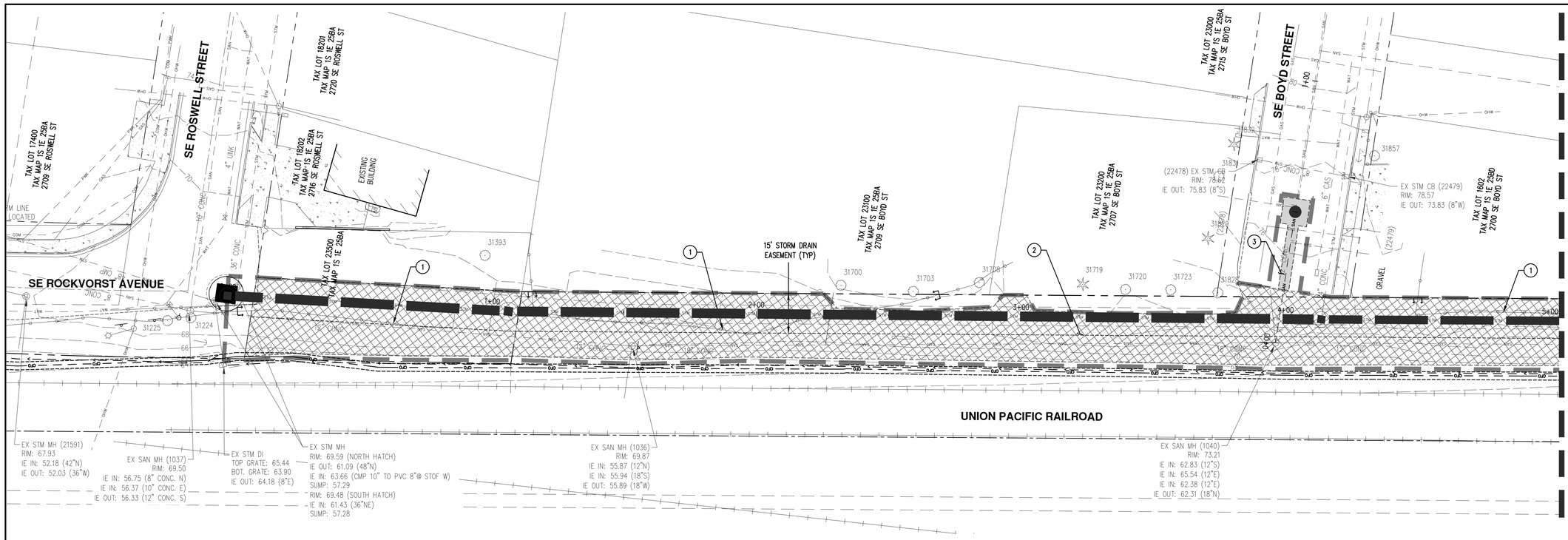
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

SHEET **C301**

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C301



SCALE: 1"=20 FEET

GENERAL KEYED NOTES: (#)

1. REPLACE EXISTING FENCE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL.
2. REPLACE TOPSOIL AND RESEED PER CITY OF MILWAUKIE TRENCH PATCH DETAIL 509 – TRENCHES OUTSIDE OF PAVED AREAS.
3. RESTORE AC PAVEMENT PER CITY OF MILWAUKIE TRENCH PATCH DETAIL 509 – TRENCHES WITHIN PAVED AREAS.
4. REPLACE PCC PAVEMENT PANEL TO NEAREST JOINT.
5. REPLACE CURB AND GUTTER PER ODOT STANDARD DETAIL RD700.
6. RESTORE SIDEWALK PER ODOT STANDARD DETAIL RD720.
7. SAWCUT LINE. SLURRY MUST BE VACUUMED DURING CUT.
8. REPLACE 12" SOLID WHITE CROSSWALK STRIPE PER ODOT STANDARD DETAIL TM503.
9. REPLACE 12" SOLID WHITE STOP BAR PER ODOT STANDARD DETAIL TM503.
10. REPLACE 4" SOLID WHITE LINE PER ODOT STANDARD DETAIL TM500.
11. REPLACE DOUBLE NO-PASS TWO 4" YELLOW LINES PER ODOT STANDARD DETAIL TM500.
12. REPLACE 4" YELLOW BROKEN LINE PER ODOT STANDARD DETAIL TM500.
13. REPLACE 8" SOLID WHITE BIKE LANE PER ODOT STANDARD DETAIL TM500.
14. REPLACE EXISTING HEDGE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL.
15. INSTALL GRAVEL ACCESS PER DETAIL, SHEET C551.
16. INSTALL FENCE PER DETAIL, SHEET C551.
17. INSTALL 20-FT WIDE DOUBLE SWING GATE PER DETAIL, SHEET C552.
18. INSTALL PAVED ACCESS ROAD PER DETAIL, SHEET C551.
19. REPLACE EXISTING COMMERCIAL DRIVEWAY DROP PER ODOT DETAIL RD745, SHEET C550.

LEGEND

EXISTING GROUND CONTOUR (2 FT)	348
EXISTING GROUND CONTOUR (10 FT)	350
FINISHED GRADE CONTOUR (1 FT)	344
FINISHED GRADE CONTOUR (5 FT)	345
FENCE REMOVAL LIMITS	
AC PAVEMENT RESTORATION	
PCC PAVEMENT RESTORATION	
GRAVEL SURFACE RESTORATION	
REPLACE TOPSOIL AND RESEED PER DETAIL 509	
TRENCH SAWCUT IN PAVEMENT	

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MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (0+00 - 5+00) - SURFACE RESTORATION PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

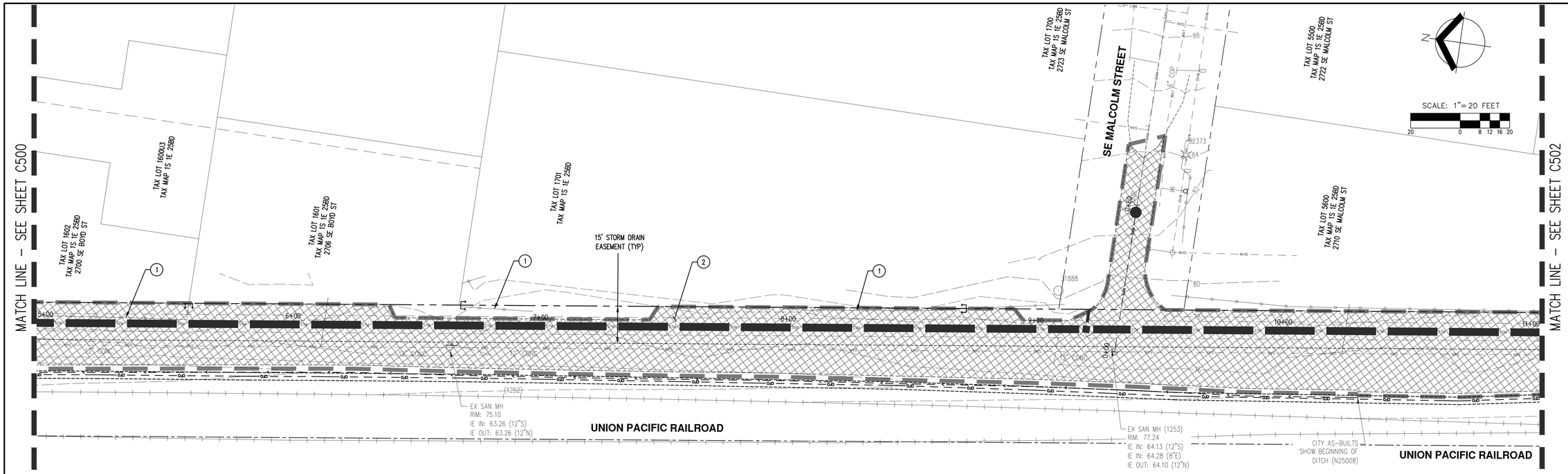
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C500

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C500



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19. REPLACE EXISTING COMMERCIAL DRIVEWAY DROP PER ODOT DETAIL RD745, SHEET C550.

LEGEND

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AC PAVEMENT RESTORATION	
PCC PAVEMENT RESTORATION	
GRAVEL SURFACE RESTORATION	
REPLACE TOPSOIL AND RESEED PER DETAIL 509	
TRENCH SAWCUT IN PAVEMENT	

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (5+00 - 11+00) - SURFACE RESTORATION PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

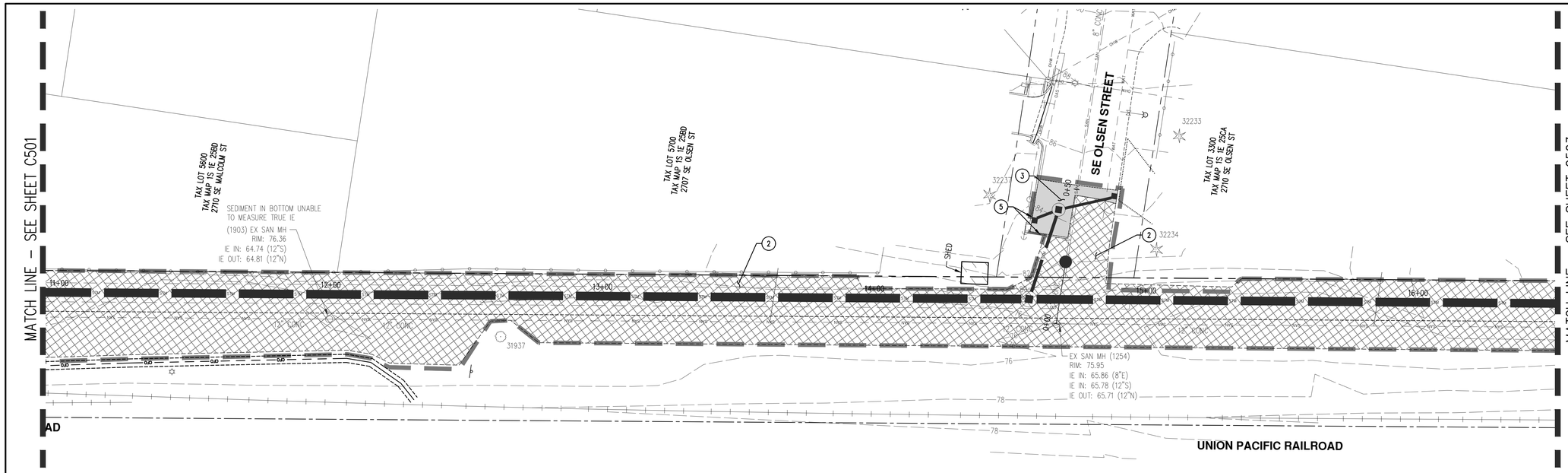
REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2009
JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C501

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C501



SCALE: 1"= 20 FEET

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (11+00 - 16+50) - SURFACE RESTORATION PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2009 JOHN P. CHRISTIANSEN

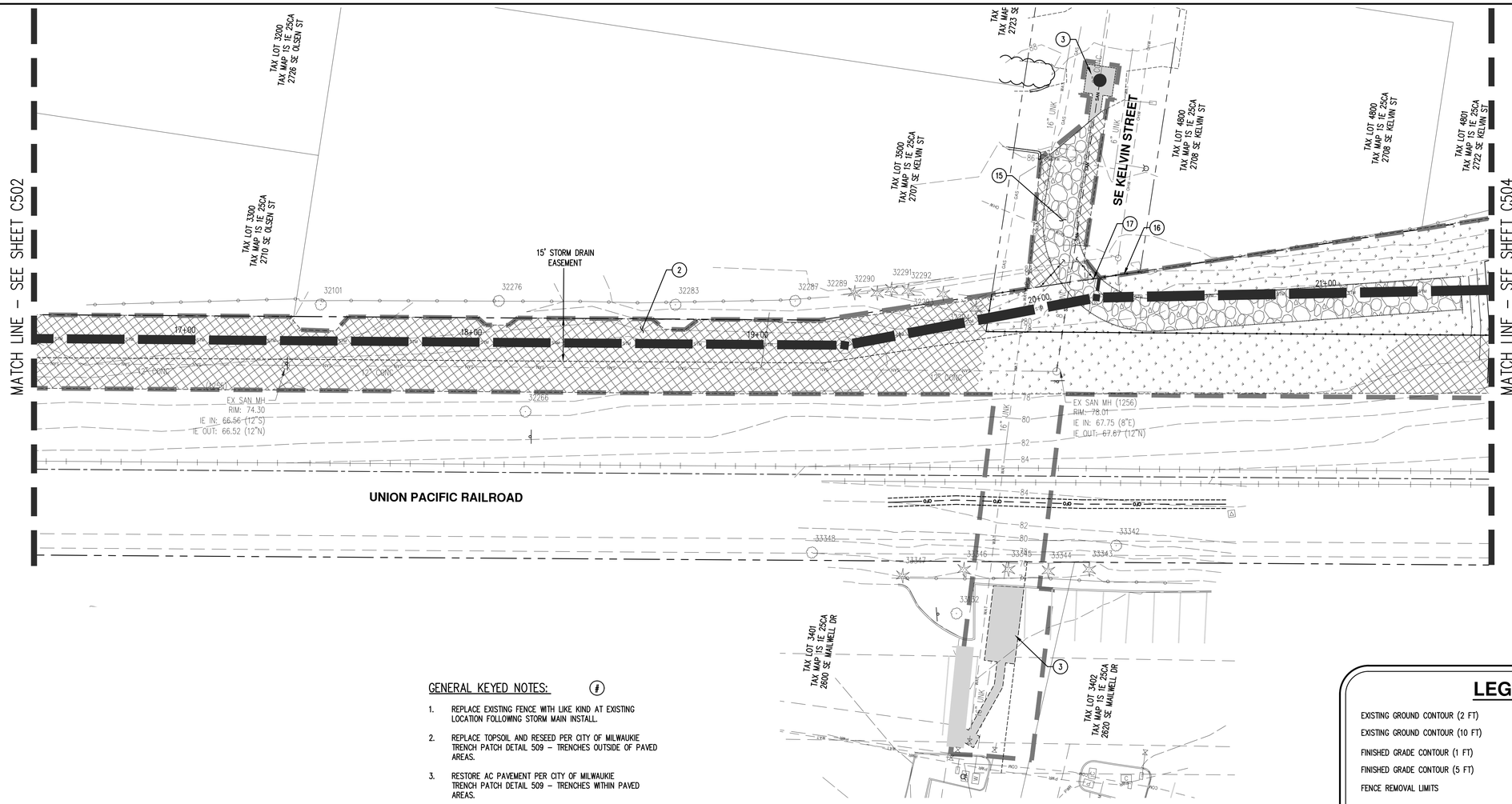
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C502

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C502



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9. REPLACE 12" SOLID WHITE STOP BAR PER ODOT STANDARD DETAIL TM503.
10. REPLACE 4" SOLID WHITE LINE PER ODOT STANDARD DETAIL TM500.
11. REPLACE DOUBLE NO-PASS TWO 4" YELLOW LINES PER ODOT STANDARD DETAIL TM500.
12. REPLACE 4" YELLOW BROKEN LINE PER ODOT STANDARD DETAIL TM500.
13. REPLACE 8" SOLID WHITE BIKE LANE PER ODOT STANDARD DETAIL TM500.
14. REPLACE EXISTING HEDGE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL.
15. INSTALL GRAVEL ACCESS PER DETAIL, SHEET C551.
16. INSTALL FENCE PER DETAIL, SHEET C551.
17. INSTALL 20-FT WIDE DOUBLE SWING GATE PER DETAIL, SHEET C552.
18. INSTALL PAVED ACCESS ROAD PER DETAIL, SHEET C551.
19. REPLACE EXISTING COMMERCIAL DRIVEWAY DROP PER ODOT DETAIL RD745, SHEET C550.

LEGEND

EXISTING GROUND CONTOUR (2 FT)	348
EXISTING GROUND CONTOUR (10 FT)	350
FINISHED GRADE CONTOUR (1 FT)	344
FINISHED GRADE CONTOUR (5 FT)	345
FENCE REMOVAL LIMITS	
AC PAVEMENT RESTORATION	
PCC PAVEMENT RESTORATION	
GRAVEL SURFACE RESTORATION	
REPLACE TOPSOIL AND RESEED PER DETAIL 509	
TRENCH SAWCUT IN PAVEMENT	

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD STE 100
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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON
CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (16+50 - 21+50) - SURFACE RESTORATION PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2009
JOHN P. CHRISTIANSEN

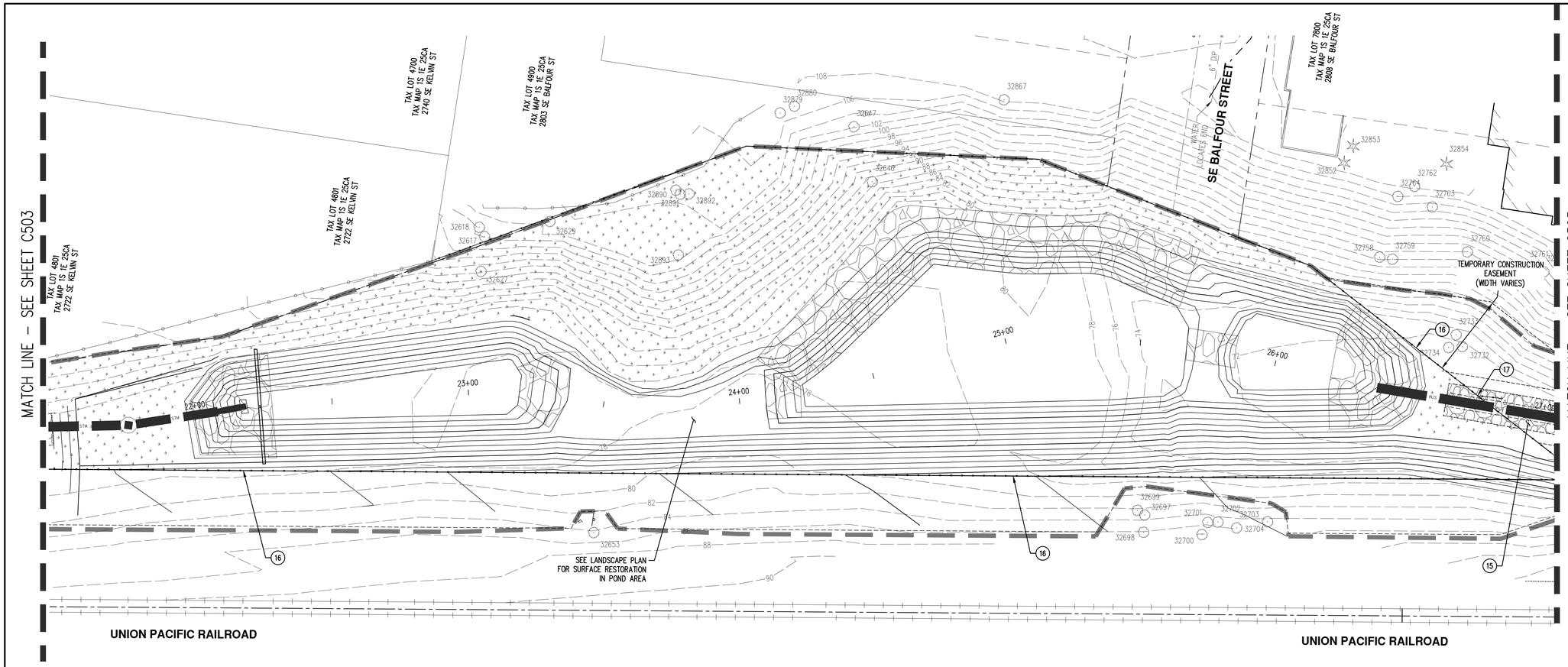
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C503

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C503



SCALE: 1"=20 FEET

GENERAL KEYED NOTES:

1. REPLACE EXISTING FENCE WITH LIKE KIND AT EXISTING LOCATION FOLLOWING STORM MAIN INSTALL.
2. REPLACE TOPSOIL AND RESEED PER CITY OF MILWAUKIE TRENCH PATCH DETAIL 509 – TRENCHES OUTSIDE OF PAVED AREAS.
3. RESTORE AC PAVEMENT PER CITY OF MILWAUKIE TRENCH PATCH DETAIL 509 – TRENCHES WITHIN PAVED AREAS.
4. REPLACE PCC PAVEMENT PANEL TO NEAREST JOINT.
5. REPLACE CURB AND GUTTER PER ODOT STANDARD DETAIL RD700.
6. RESTORE SIDEWALK PER ODOT STANDARD DETAIL RD720.
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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (21+50 - 27+00) - SURFACE RESTORATION PLANS

DESIGNED BY:	JPC
DRAWN BY:	NAD
CHECKED BY:	JPC
SCALE:	AS NOTED
DATE:	05/11/2023

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2007
JOHN P. CHRISTIANSEN

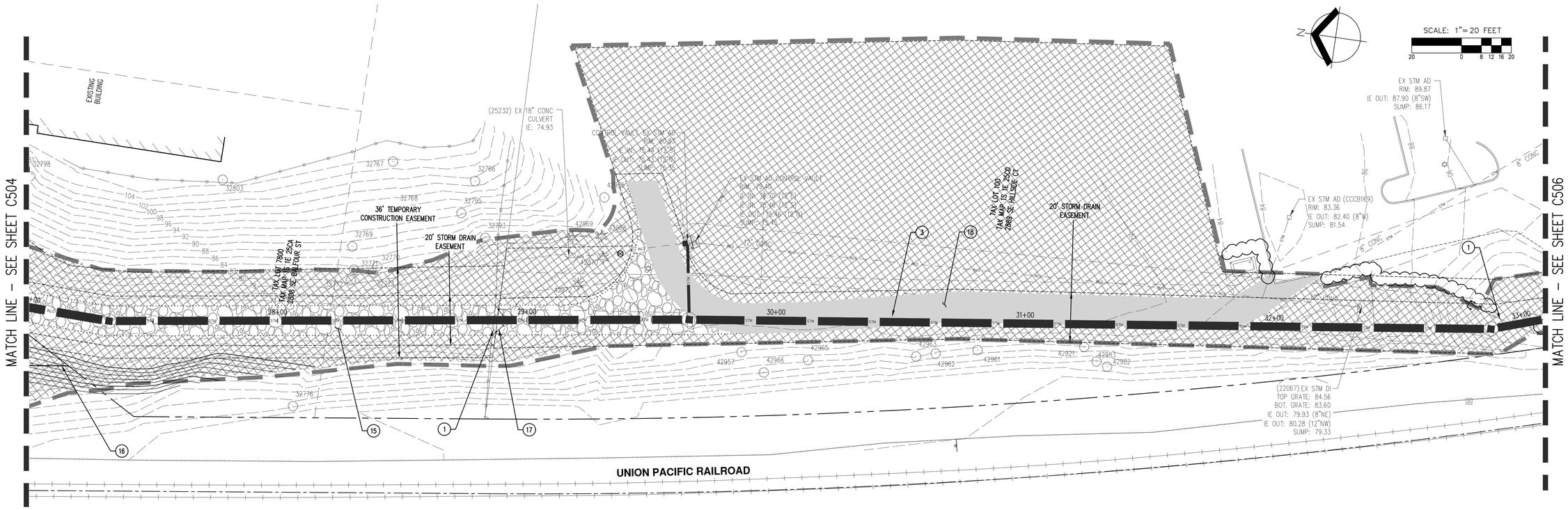
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C504

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C504



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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE
CLACKAMAS COUNTY TAX LOTS

OREGON
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

STM A (27+00 - 33+00) - SURFACE RESTORATION PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

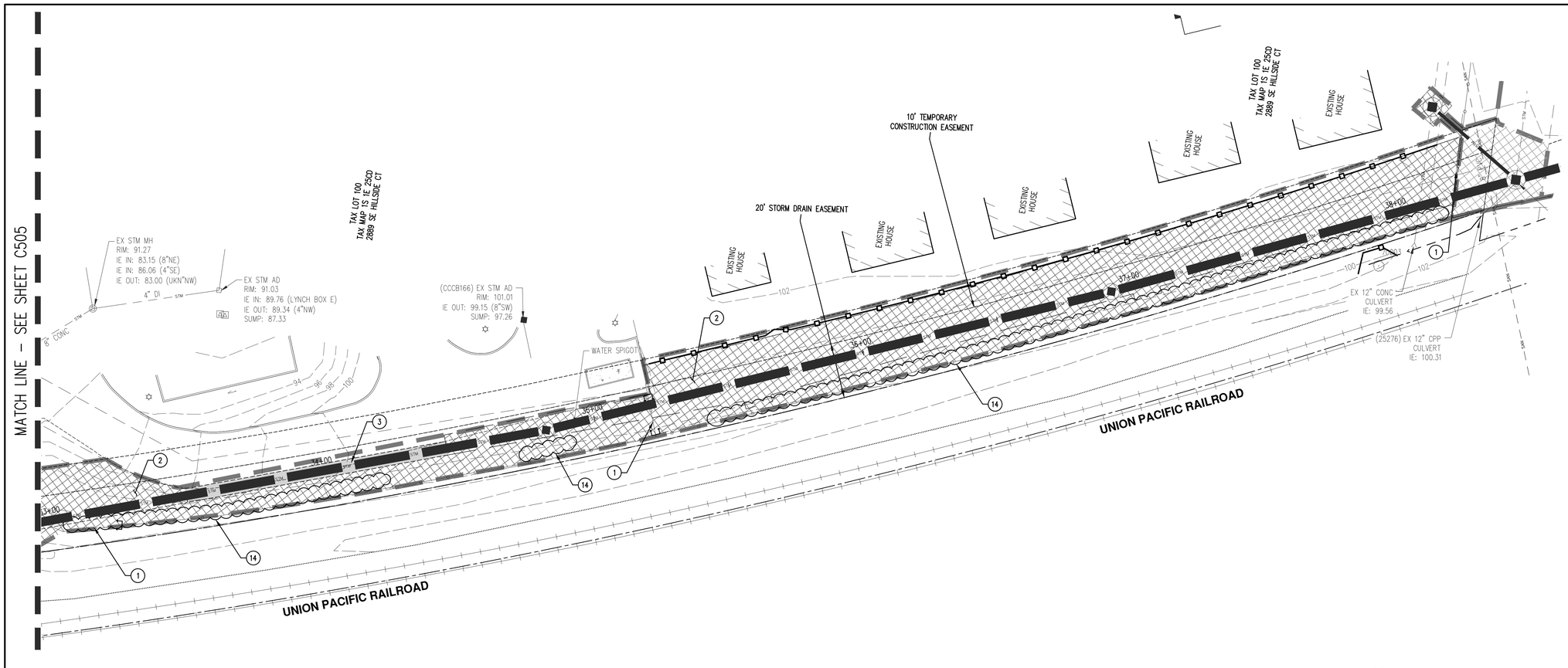
REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2009
JOHN P. CHRISTIANSEN
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C505

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C505



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MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36A, 11E25

STM A (33+00 - 38+50) - SURFACE RESTORATION PLANS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER
76382PE
OREGON
JUNE 29, 2005
JOHN P. CHRISTIANSEN

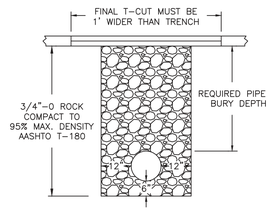
RENEWAL DATE: 12/31/23

REVISIONS

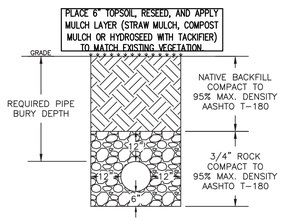
JOB NUMBER
5122

SHEET
C506

AKS DRAWING FILE: 5122 C500 SURF RESTORATION PLANS.DWG | LAYOUT: C506



TRENCHES WITHIN PAVED AREAS



TRENCHES OUTSIDE OF PAVED AREAS

ASPHALT REPLACEMENT DEPTH	
CLASSIFICATION	DEPTH (IN.)
ARTERIAL/INDUSTRIAL	8 OR EXISTING
COLLECTOR	6 OR EXISTING
LOCAL	4 OR EXISTING

NOTES:

1. ADDITIONAL REPAIR IS REQUIRED FOR STREETS PAVED WITHIN THE LAST 5 YEARS. SEE STANDARD DETAIL NO. 516.
2. FINAL SAWCUTS MUST BE 6" WIDER THAN THE WIDTH OF THE ROLLER USED FOR COMPACTION
3. PAVING SHALL CONSIST OF CLASS "C" MODIFIED ASPHALT CONCRETE AND BE PLACED IN LIFTS. EACH LIFT OF PAVEMENT SHALL HAVE A MAXIMUM DEPTH OF 3" & MINIMUM DEPTH OF 2".
4. INFRARED ASPHALT REPAIRS MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEERING DIRECTOR.
5. UNDERMINED, BROKEN OR CRACKED PAVEMENT EDGES SHALL BE SAWCUT AND REMOVED AT THE DISCRETION OF THE ENGINEERING DIRECTOR.
6. CONTROL DENSITY FILL (CDF) MAY BE REQUIRED AT ENGINEER'S DISCRETION.

MODIFIED BY AKS

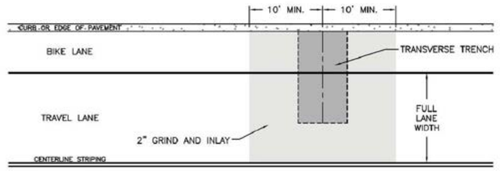
CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

Trench Patch

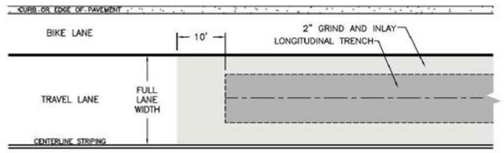
DRAWING NO. 509

APPROVED 11/18
CITY ENGINEER DATE

NO.	REVISIONS	DATE	BY
2	REVISED NOTES	12/12	MTC
3	ADDED T-CUT LANGUAGE	12/14	AJR
4	DRAWING NUMBER CHANGED	11/18	TAP



TRANSVERSE TRENCH



LONGITUDINAL TRENCH

NOTES:

1. CALL FOR INSPECTION PRIOR TO PAVING TRENCH TO DISCUSS PREP-WORK WITH INSPECTOR.
2. ASPHALT WITHIN TRENCH AREA IS TO BE REPLACED IN 2" LIFTS BACK TO PREVIOUS GRADE. SEE DETAIL 515 FOR TRENCH REPAIR STANDARDS.
3. LIMITS OF GRIND DESCRIBED ABOVE MUST AT LEAST 2" DEEP FOR ENTIRE AREA. ONCE THIS IS COMPLETE, THE FINAL LIFT MAY BE APPLIED AFTER INSPECTION.
4. ANY TRANSVERSE CUT INTO A LANE REQUIRES A FULL LANE WIDTH, 2" GRIND AND INLAY REPLACEMENT (EXAMPLE: IF THE BIKE LANE IS CUT INTO BUT NOT THE TRAVEL LANE, ONLY THE BIKE LANE WILL REQUIRE A FULL WIDTH 2" GRIND AND INLAY AS SHOWN).

CITY OF MILWAUKIE, OREGON – PUBLIC WORKS DEPT.

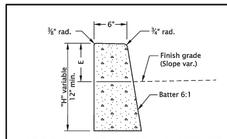
Asphalt Repair for Newly Paved Road

DRAWING NO. 510

APPROVED 11/18
CITY ENGINEER DATE

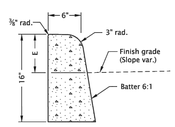
NO.	REVISIONS	DATE	BY
2	REDRAWN DRAWING	12/12	MCP
3	CLARIFIED DIMENSIONS	12/14	AJR
4	DRAWING NUMBER CHANGED	11/18	TAP

20-JUL-2020

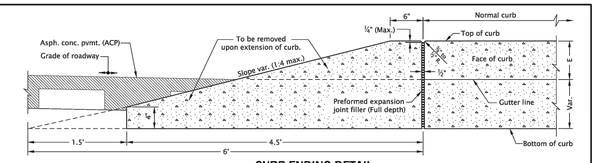


O.D.O.T. & City of Portland Standard "H"=16"

STANDARD CURB
(See general note 11)

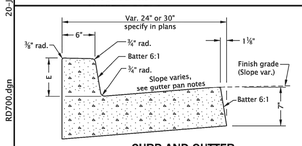


MOUNTABLE CURB
(See general note 11)

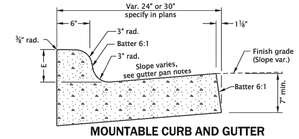


CURB ENDING DETAIL

RD700.dgn



CURB AND GUTTER



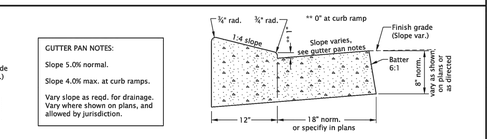
MOUNTABLE CURB AND GUTTER

GUTTER PAN NOTES:

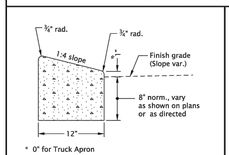
Slope 5.0% normal.

Slope 4.0% max. at curb ramps.

Vary slope as reqd. for drainage. Vary where shown on plans, and allowed by jurisdiction.

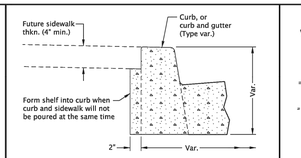


LOW PROFILE MOUNTABLE CURB AND GUTTER
(Where shown on plans)

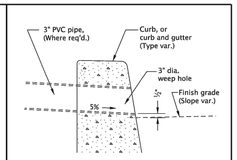


* 0" for Truck Apron

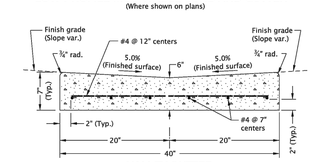
LOW PROFILE MOUNTABLE CURB
(See general note 11)



MODIFICATION FOR KEYWAY
(Where shown on plans)



WEEP HOLE DETAIL
(Where shown on plans, and allowed by jurisdiction)



VALLEY GUTTER

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Curb exposure "E" = 6" to 9", as measured vertically from flowline to highest point on curb. Vary as shown on plans or as directed. O.D.O.T standard "E"=7".
2. Const. curb expansion joints at 200' maximum spacing, and at points of tangency, and at ends of each driveways.
3. Const. curb contraction joints at 15' maximum spacing, and at ends of each inlet and curb ramp.
4. Transitions shall be used to connect curbs of different exposures "E". ("E" is the total vertical dimension of those curb surfaces having a slope of 1:1 or steeper). Minimum desirable transition length shall be 20' for each 1" difference in "E".
5. Tops of all curbs shall slope toward the roadway at 1.5% max. (Max. 2.0% finished surface slope), unless otherwise shown, or as directed.
6. Dimensions are nominal, vary to conform with curb machine approved by the engineer.
7. Dimensions adjacent to radii are measured to the point of intersection of curb surfaces.
8. For sidewalk details, and monolithic curb & sidewalk, see Std. Dwgs. RD720 & RD721.
9. For drainage curbs, see Std. Dwg. RD701.
10. For curb ramp details, see Std. Dwgs. RD900 series.
11. On or along state highways, curb and gutter is required at curb ramp.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURBS

2021

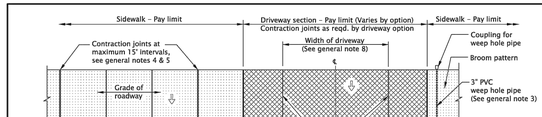
DATE	REVISION DESCRIPTION

CALC. BOOK NO. _ _ _ N/A _ _ _ SDR DATE 20-JUL-2020 **RD700**

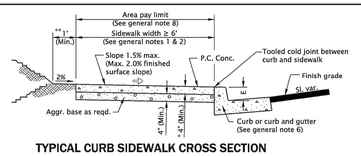
Effective Date: June 1, 2023 – November 30, 2023

20-JUL-2020

RD720.dgn



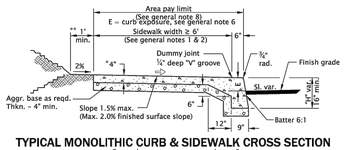
TYPICAL PLAN VIEW - CURB LINE SIDEWALK



TYPICAL CURB SIDEWALK CROSS SECTION

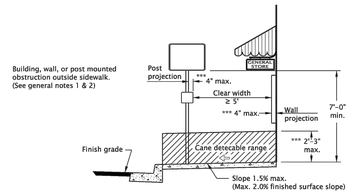
* Min. 4" or as specified in plans. A thickness ≥ 6" if sidewalk is intended as portion of a driveway or mountable curb is used.

** Provide compacted backfill adjacent to curb and sidewalk

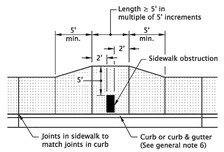


TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION
E = curb exposure, see general note 6

*** Objects with base below 2'-3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'-3" protrudes further than 4" provide a detection below protrusion to delineate edge.



CLEAR CIRCULATION PATH



REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. RD722 for expansion joints details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. RD722 for contraction joints details.
6. For curb details, see Std. Dwgs. RD700 & RD701. ODOT standard E=7".
7. Sidewalk details are based on applicable ODOT standards.
8. Fully lowered sidewalk shown; see project plans for the diveway design specified. For driveway details not shown, see Std. Dwgs. RD725, RD730, RD735, RD740, RD745 & RD750.
9. See project plans for details not shown.

LEGEND

Sidewalk pay limit.

Driveway pay limit, varies by option, (See general note 8).

Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB LINE SIDEWALKS

2021

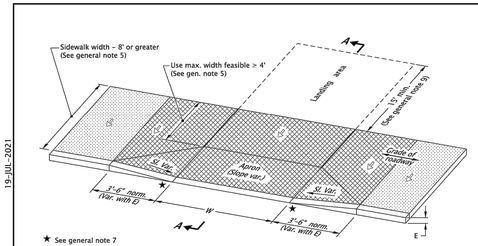
DATE	REVISION DESCRIPTION

CALC. BOOK NO. _ _ _ N/A _ _ _ SDR DATE 21-JUN-2019 **RD720**

Effective Date: June 1, 2023 – November 30, 2023

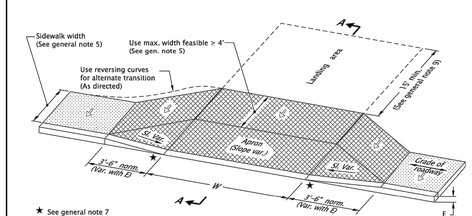
19-JUL-2021

RD745.dgn



★ See general note 7

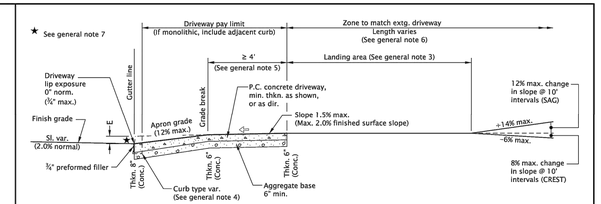
OPTION K
DRIVEWAY IN WIDE (8' OR GREATER) SIDEWALK



★ See general note 7

OPTION L
SIDEWALK WRAPPED AROUND DRIVEWAY

★ See general note 7



SECTION A-A

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Details are based on applicable ODOT Standards.
2. Only use details allowed by jurisdiction.
3. The following dimensions are as shown on plans, or as directed: driveway width, driveway slope, sidewalk width, curb exposure, driveway lip exposure, landing area length and width. See project plans for details not shown.
4. Curb, gutter, and sidewalk types varies, see plans. See Std. Dwgs. RD700 & RD701 for curb details. See Std. Dwg. RD720 for sidewalk details See Std. Dwg. RD722 for joint details.
5. A greater than or equal 4' unobstructed clear passage with cross slope 1.5% max. (Max. 2.0% finished surface slope) is required behind driveway apron.
6. Where existing driveway is in good condition, and meets slope requirements, construct only as much landing area as required for satisfactory connection with new work.
7. Check the gutter flow depth at driveway locations to assure that the design flood does not overtop the back of sidewalk at driveway. If overtopping occurs place an inlet at upstream side of driveway or perform other approved design mitigation.
8. Construct a full deph expansion joints with 1/2" preformed joint filler at ends of each driveway. Tooled joints are required at all driveway slope break lines.
9. 15' min. of the driveway behind the sidewalk should be surfaced to prevent tracking of gravel onto the sidewalk.
10. Monolithic curb & sidewalk shall retain thickened edge through lowered profile, to accommodate driveway use. See Std. Dwg. RD720 for details.
11. Any dimensions except those of general note 5 may be amended by local agencies for their use.

LEGEND:

Sidewalk

Driveway pay limit (If monolithic, include adjacent curb) (See project plans for details not shown)

Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

W Width of driveway

E Curb exposure

NOTE:
This drawing is to be used by local agencies to assist them in the design of driveways on their facilities.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

CURB LINE SIDEWALK DRIVEWAYS OR ALLEYS (OPTIONS K & L) LOCAL JURISDICTIONS

2021

DATE	REVISION DESCRIPTION
07-2021	REVISED NOTES

CALC. BOOK NO. _ _ _ N/A _ _ _ SDR DATE 19-JUL-2021 **RD745**

Effective Date: June 1, 2023 – November 30, 2023

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON
CLACKAMAS COUNTY TAX LOTS
11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

SITE RESTORATION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2005 JOHN P. CHRISTIANSEN

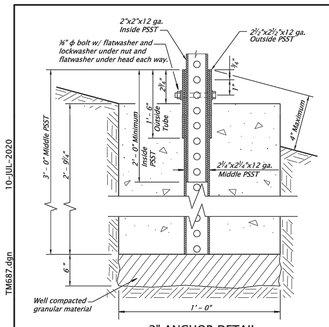
RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER 5122

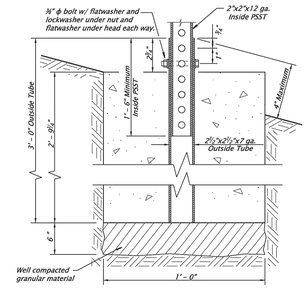
SHEET **C550**

AKS DRAWING FILE: 5122 C215 DETAILS.DWG | LAYOUT: C550



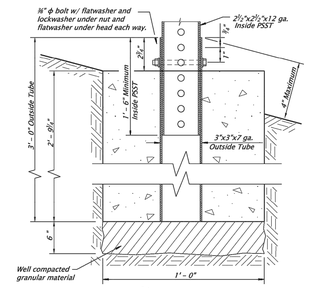
2" ANCHOR DETAIL

No scale



2" OPTIONAL ANCHOR DETAIL

No scale

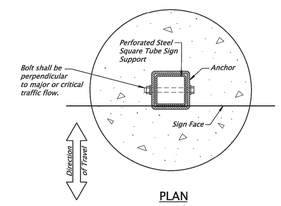


2½" ANCHOR DETAIL

No scale

General Notes:

1. Material grade for base hardware connection shall be according to the manufacturer's recommendation and based on crash testing.
2. Anchor steel shall be hot dipped galvanized or approved equal.
3. Footing concrete shall be Commercial Grade Concrete (fc = 3000 psi) per Specification 00440. The CCC mixture may be accepted at the site of placement according to 00440.14.
4. The estimated concrete volume is .09 cubic yards.



PLAN

No scale

Accompanied by dwgs. TM681, TM688

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

OREGON STANDARD DRAWINGS

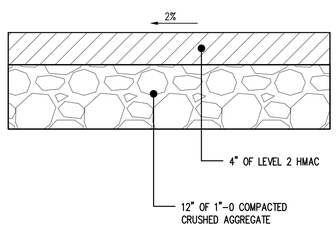
PERFORATED STEEL SQUARE TUBE (PSST) ANCHOR FOUNDATION

2021

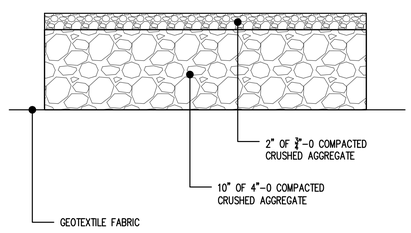
DATE	REVISION DESCRIPTION

CALC. BOOK NO. 5752 — SOR DATE 06-JAN-2012 — **TM687**

Effective Date: June 1, 2023 - November 30, 2023



PAVED ACCESS ROAD DETAIL



GRAVEL ACCESS ROAD DETAIL

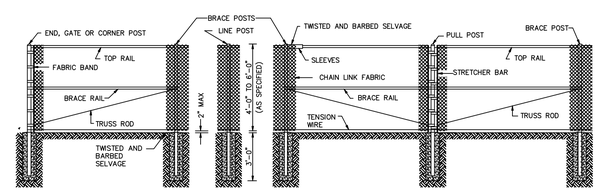
ACCESS ROAD DETAILS
NTS

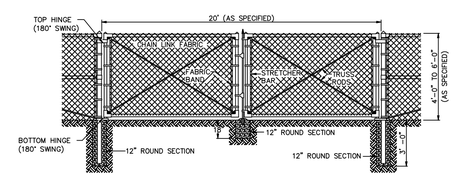
2
C551

MEMBER	NOMINAL DIA (IN)	MATERIAL
BRACE RAIL	1.660	GALV TUBULAR STL
GATE FRAME	2.00	GALV TUBULAR STL
LINE POSTS	2.375	GALV TUBULAR STL
END & CORNER POST	2.875	GALV TUBULAR STL
CHAIN LINK FABRIC		9 GA. W/GREEN OR BLACK PVC COATING.
	GATE OPENING (ft)	NOMINAL DIA (IN) / MATERIAL
GATE POST	12' OR 15'	4 / GALV TUBULAR STL

NOTES:

1. ALL FITTINGS, FASTENERS, & AND FABRIC TIES SHALL BE HOT DIP GALV.
2. CONC SHALL BE MIN 2500 PSI @ 28 DAYS.
3. PROVIDE BRACE RAIL BETWEEN END POSTS AND LINE POSTS. LENGTHS AS REQ'D.
4. PROVIDE GATE STOPS AND DROP RECEIVERS SET IN CONCRETE, EACH GATE.
5. PROVIDE EXTENSION ARMS ON LINE, END AND CORNER POSTS & GATE POSTS AS REQ'D.
6. PROVIDE SIGHT OBSCURING SLATS WITH ALL WASTEWATER PUMP STATIONS.
7. CENTER BRACE RAIL NOT REQUIRED WITH FENCE HEIGHT OF 5' OR LESS.
8. ALL POSTS AND RAILS TO MATCH FENCE COLOR.





CHAIN LINK FENCE AND GATE
NTS

3
C551

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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON

CLACKAMAS COUNTY TAX LOTS — 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

SITE RESTORATION DETAILS

DESIGNED BY: JPC
DRAWN BY: NAD
CHECKED BY: JPC
SCALE: AS NOTED
DATE: 05/11/2023

REGISTERED PROFESSIONAL ENGINEER 76382PE OREGON JUNE 29, 2018 JOHN P. CHRISTIANSEN

RENEWAL DATE: 12/31/23

REVISIONS

JOB NUMBER
5122

SHEET
C551

10-JUL-2020
TM687.dgn

AKS DRAWING FILE: 5122 C25 DETAILS.DWG | LAYOUT: C551

PLANT SCHEDULE BALFOUR

ZONE A: ±7,958 SF
ZONE B: ±4,793 SF

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	17	ABIES GRANDIS	GRAND FIR	6' HT. MIN. B&B	AS SHOWN
	13	PINUS NIGRA	AUSTRIAN BLACK PINE	6' HT. MIN. B&B	AS SHOWN
	7	PINUS PONDEROSA	PONDEROSA PINE	6' HT. MIN. B&B	AS SHOWN
	17	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	6' HT. MIN. B&B	AS SHOWN

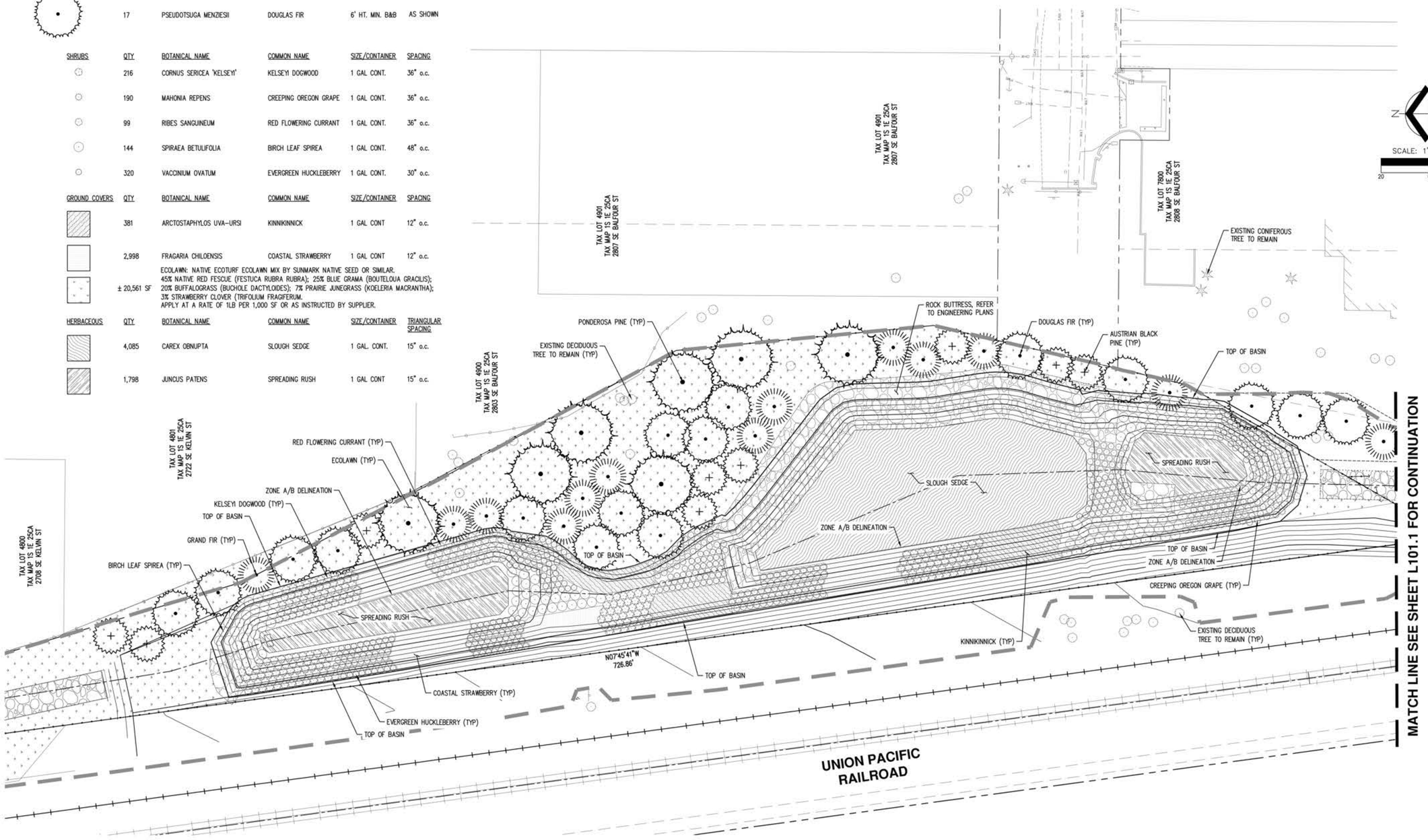
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	216	CORNUS SERICEA 'KELSEYI'	KELSEYI DOGWOOD	1 GAL CONT.	36" o.c.
	190	MAHONIA REPENS	CREEPING OREGON GRAPE	1 GAL CONT.	36" o.c.
	99	RIBES SANGUINEUM	RED FLOWERING CURRANT	1 GAL CONT.	36" o.c.
	144	SPIRAEA BETULIFOLIA	BIRCH LEAF SPIREA	1 GAL CONT.	48" o.c.
	320	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	1 GAL CONT.	30" o.c.

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	381	ARCTOSTAPHYLOS UVA-URSI	KINNIKINNICK	1 GAL CONT	12" o.c.
	2,998	FRAGARIA CHILOENSIS	COASTAL STRAWBERRY	1 GAL CONT	12" o.c.
	± 20,561 SF	ECOLAWN: NATIVE ECOTURF ECOLAWN MIX BY SUNMARK NATIVE SEED OR SIMILAR. 45% NATIVE RED FESCUE (FESTUCA RUBRA RUBRA); 25% BLUE GRAMA (BOUTELOUA GRACILIS); 20% BUFFALOGRASS (BUCHOLE DACTYLOIDES); 7% PRAIRIE JUNEGRASS (KOELERIA MACRANTHA); 3% STRAWBERRY CLOVER (TRIFOLIUM FRAGIFERUM. APPLY AT A RATE OF 1LB PER 1,000 SF OR AS INSTRUCTED BY SUPPLIER.			

HERBACEOUS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	TRIANGULAR SPACING
	4,085	CAREX OBNUPTA	SLOUGH SEDGE	1 GAL. CONT.	15" o.c.
	1,798	JUNCUS PATENS	SPREADING RUSH	1 GAL CONT	15" o.c.

PUBLIC STORMWATER FACILITY NOTES – UNLINED BASIN:

1. PLANTS AND PLANTINGS ARE SHOWN TO PORTRAY THE CHARACTER OF THE SITE AND CONFORM TO THE CITY OF PORTLAND STORMWATER MANAGEMENT MANUAL. PLAN REVISIONS INCLUDING CHANGES TO PLANT SPECIES, SIZES, SPACING, QUANTITIES, ETC., DUE TO PLANT AVAILABILITY OR UNFORESEEN SITE CONDITIONS MAY BE MADE BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION WHERE ALLOWED BY THE CITY OF MILWAUKIE'S DESIGN STANDARDS. PLANT SPECIES SUBSTITUTIONS MAY BE APPROVED BASED ON AVAILABILITY AT TIME OF INSTALLATION. ALL PLANT SUBSTITUTIONS MUST BE FROM THE CITY OF PORTLAND'S STORMWATER MANAGEMENT MANUAL (SWMM) PUBLIC STORMWATER FACILITY PLANT LIST (SECTION 3.5 CURRENT EDITION AND TABLE 4-4 PLANT LIST FOR VEGETATED STORMWATER FACILITIES), AND BE APPROPRIATE FOR SOIL, HYDROLOGIC, SITE CONDITIONS.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT QUANTITIES AND ALL MATERIALS PRIOR TO BIDDING AND CONSTRUCTION. IF DISCREPANCIES OCCUR, DESIGN INTENT PREVAILS OVER QUANTITIES LISTED.
3. LANDSCAPE INSTALLATION SHALL CONFORM TO THE CITY OF MILWAUKIE'S LANDSCAPE DESIGN STANDARDS AND TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1, CURRENT EDITION) IN ALL WAYS. PLANT IN ACCORDANCE WITH ACCEPTED 'BEST PRACTICE INDUSTRY STANDARDS', SUCH AS THOSE ADOPTED BY THE OREGON LANDSCAPE CONTRACTOR'S BOARD (OLCB) AND THE AMERICAN ASSOCIATION OF NURSERYMEN. FIELD ADJUST PLANT LOCATIONS AS NECESSARY TO AVOID CONFLICTS WITH UTILITIES, CANOPIES OF TREES AND/OR EXISTING VEGETATION TO REMAIN, ETC.
4. ALL LANDSCAPING SHALL BE INSTALLED AT THE TIME OF CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE CITY OF MILWAUKIE DUE TO INCLEMENT WEATHER OR TEMPORARY SITE CONDITIONS. UPON INSTALLATION, ALL PLANT MATERIALS SHALL BE VIGOROUS, WELL-BRANCHED, AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS, FREE OF DISEASE, INSECT PESTS, AND INJURIES.
5. REFER TO TREE, SHRUB AND GROUNDCOVER PLANTING DETAILS (SHEET L102).
6. IRRIGATION POINT-OF-CONNECTION (POC) TO BE DETERMINED.
7. A TEMPORARY IRRIGATION SYSTEM, WITH A BACKFLOW DEVICE APPROVED BY THE CITY OF MILWAUKIE, SHALL BE PROVIDED FOR ALL STORMWATER FACILITIES FOR THE ESTABLISHMENT AND LONG-TERM HEALTH OF PLANT MATERIAL. THE IRRIGATION SYSTEM SHALL BE 'DESIGN-BUILD' BY THE LANDSCAPE CONTRACTOR, USING CURRENT WATER-SAVING TECHNOLOGY, AND INCLUDE ALL MATERIALS, COMPONENTS, CITY APPROVED BACKFLOW OR ANITI-SIPHON DEVICES, VALVES, ETC. NECESSARY FOR THE COMPLETE AND EFFICIENT COVERAGE OF STORMWATER AREAS SHOWN. THE LANDSCAPE CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OWNER FOR POINT-OF-CONNECTION (POC), SLEEVING LOCATION, AND MAINLINE LAYOUT, AND SHALL PROVIDE CITY OF MILWAUKIE WITH IRRIGATION PLAN INCLUDING ZONING AND COMPONENT LAYOUT FOR APPROVAL PRIOR TO INSTALLATION. TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED ONCE PLANTS ARE FULLY ESTABLISHED, GENERALLY 2 TO 3 YEARS. CONTRACTOR SHALL PROVIDE CITY OF MILWAUKIE WITH IRRIGATION PLAN INCLUDING COMPONENT LAYOUT FOR APPROVAL PRIOR TO INSTALLATION AS A DELAYED SUBMITTAL.
8. SOIL: GROWING MEDIUM FOR VEGETATED STORMWATER FACILITIES SHALL BE PLACED AT A MINIMUM DEPTH OF 24" OVER NATIVE SOIL, UNLESS OTHERWISE NOTED. GROWING MEDIUM MUST CONFORM TO SPECIFICATIONS OUTLINED IN SWMM SECTION 3.2.2.1 OF CITY OF PORTLAND STORMWATER MANAGEMENT MANUAL (SWMM), CURRENT EDITION. REFER ALSO TO SWMM SECTION 6.3 AND DETAIL SW-150 UNLINED BASIN (SHEET L102). MEDIUM SHALL BE LOOSE AND FRIABLE, WELL MIXED AND HOMOGENOUS, FREE OF WOOD PIECES, PLASTIC, AND OTHER FOREIGN MATTER AND HAVE NO VISIBLE FREE WATER.
9. MULCH: FINE TO MEDIUM HEMLOCK BARK SHALL BE PLACED AT A DEPTH OF 2"-3" ABOVE HIGH WATER MARK, IN PLANTING ZONE B. MULCH SHALL NOT BE PLACED SUCH THAT IT MAY ENTER WATERWAYS OR CLOG INLETS/OUTLETS. MULCH MUST BE WEED FREE AND APPLIED 2"-3" THICK TO COVER ALL SOIL BETWEEN PLANTS. IT SHOULD NOT BE OVER-APPLIED.



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CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE — OREGON
CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

BALFOUR WATER QUALITY FACILITY LANDSCAPE PLAN

DESIGNED BY:	NKP
DRAWN BY:	JRH
CHECKED BY:	KAH
SCALE:	AS NOTED
DATE: 05/11/2023	

REGISTERED 797 KIRSTI A. HAUSWALD OREGON 06/06/13 LANDSCAPE ARCHITECT

REVISIONS:

JOB NUMBER
5122

SHEET
L100

AKS DRAWING FILE: 5122 L100 LANDSCAPE.DWG | LAYOUT: L100

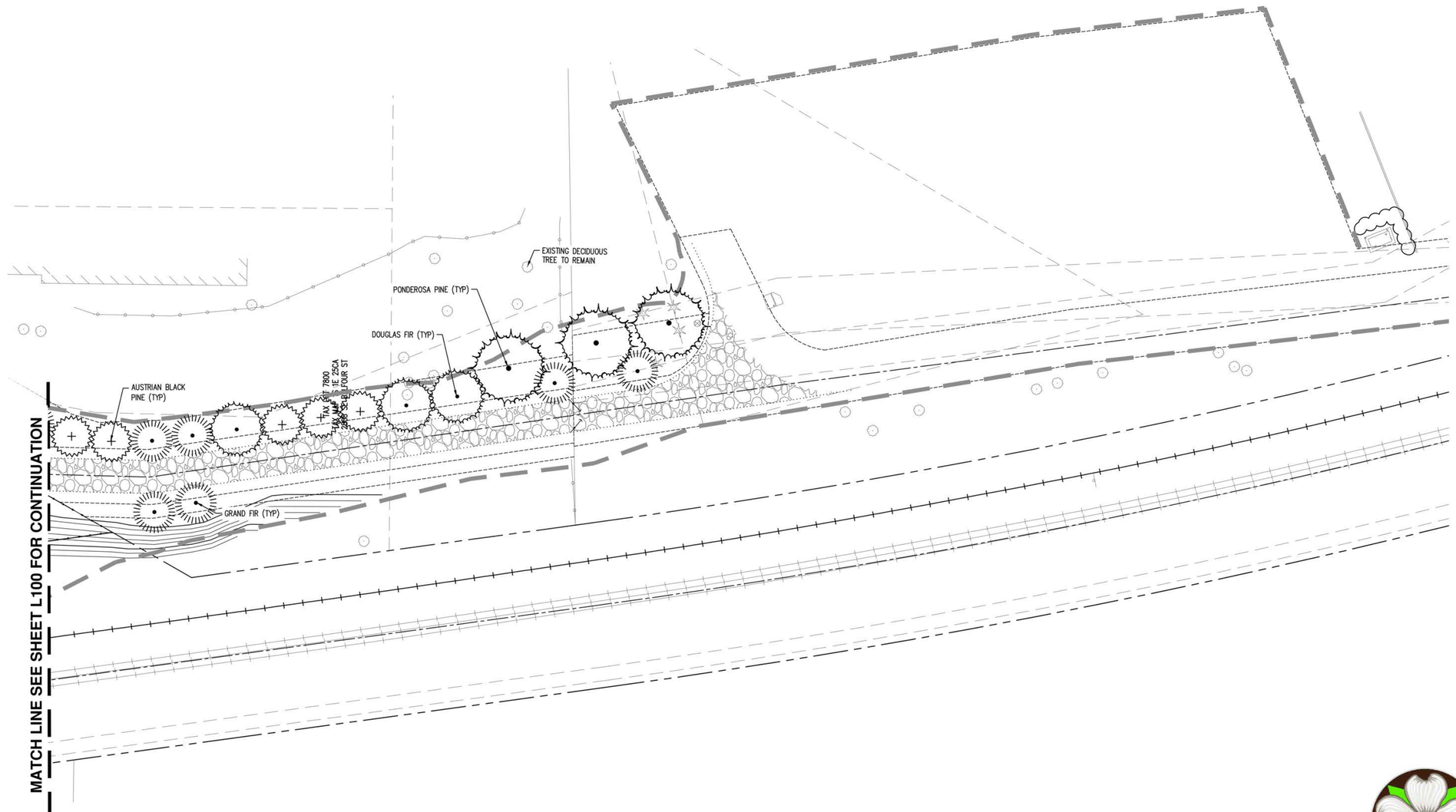
PLANT KEY

TREES	COMMON NAME
	GRAND FIR
	AUSTRIAN BLACK PINE
	PONDEROSA PINE
	DOUGLAS FIR

SHRUBS	COMMON NAME
	KELSEYI DOGWOOD
	CREEPING OREGON GRAPE
	RED FLOWERING CURRANT
	BIRCH LEAF SPIREA
	EVERGREEN HUCKLEBERRY

GROUND COVERS	COMMON NAME
	KINNIKINNICK
	COASTAL STRAWBERRY
	ECOLAWN: NATIVE ECOTURF ECOLAWN MIX BY SUNMARK NATIVE SEED OR SIMILAR

HERBACEOUS	COMMON NAME
	SLOUGH SEDGE
	SPREADING RUSH



N

SCALE: 1"= 20 FEET

20 0 8 12 16 20

AKS ENGINEERING & FORESTRY, LLC
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AKS

ENGINEERING · SURVEYING · NATURAL RESOURCES
FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

CITY OF MILWAUKIE
MEEK STREET PIPE INSTALLATION

MILWAUKIE OREGON

CLACKAMAS COUNTY TAX LOTS 11E25BA, 11E25CD, 11E36AB, 11E36AA, 11E25

BALFOUR WATER QUALITY FACILITY LANDSCAPE PLAN (CONT'D)

DESIGNED BY:	NKP
DRAWN BY:	JRH
CHECKED BY:	KAH
SCALE:	AS NOTED

DATE: 05/11/2023

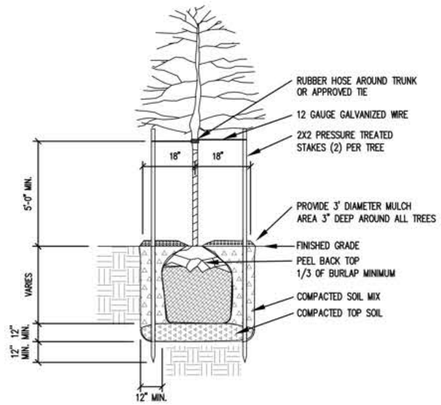
REGISTERED 797 KIRSTI A. HAUSWALD OREGON 06/06/13 LANDSCAPE ARCHITECT

REVISIONS

JOB NUMBER
5122

SHEET
L100.1

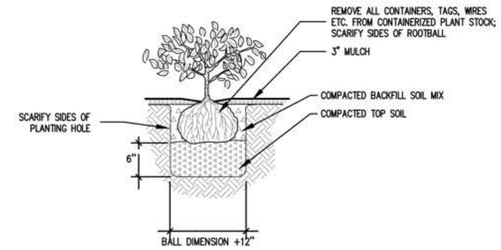
AKS DRAWING FILE: 5122 L100 LANDSCAPE.DWG | LAYOUT: L100.1



1 / L102 TYPICAL TREE PLANTING DETAIL

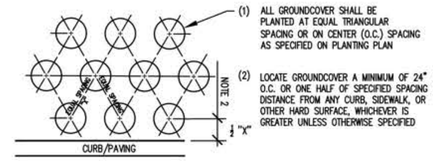
NTS

NOTES:
1. DRIVE STAKES OUTSIDE OF ROOTBALL. SINGLE STAKE TREES LESS THAN 6' TALL.
2. SET TREE 2" ABOVE FINISH GRADE TO ALLOW FOR SETTLING OF SOIL.
3. BACKFILL SOIL MIX FOR TREE PLANTING TO BE 1/3 ORGANIC MATERIALS AND 2/3 TOPSOIL.
4. REMOVE ALL WIRES, METAL BASKETS, TWINE, AND OTHER NON-COMPOSTABLE MATERIALS FROM TREE ROOTBALL PRIOR TO PLANTING.



2 / L102 TYPICAL SHRUB PLANTING DETAIL

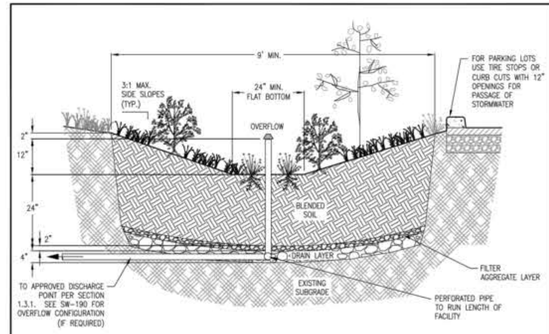
NTS
1. BACKFILL SOIL MIX SHALL BE 1/3 ORGANIC MATERIALS AND 2/3 TOPSOIL.
2. REMOVE ALL CONTAINERS, METAL, TWINE, TAGS, AND OTHER NON-BIODEGRADABLE MATERIALS PRIOR TO PLANTING.
3. ALL CONTAINERIZED PLANT STOCK SHALL BE VIGOROUS, FREE OF DISEASE AND PESTS, EVENLY FORMED, AND BE FULLY ROOTED IN THE CONTAINER IN WHICH THEY ARE DELIVERED. ALL PLANTS SHALL FOLLOW ANSI Z60.1 STANDARDS FOR NURSERY STOCK FOR CONTAINER SIZE, HEIGHT, ETC.
4. CONTRACTOR SHALL WATER-SETTLE PLANTING HOLES TO REMOVE AIR POCKETS PRIOR TO SPREADING MULCH.
5. CARE SHALL BE TAKEN TO AVOID COVERING ROOT CROWN OR FOLIAGE OF PLANTS WITH BARK MULCH.



3 / L102 TYPICAL GROUNDCOVER PLANTING DETAIL

NTS
1. BACKFILL SOIL MIX SHALL BE 1/3 ORGANIC MATERIALS AND 2/3 TOPSOIL.
2. REMOVE ALL CONTAINERS, METAL, TWINE, TAGS, AND OTHER NON-BIODEGRADABLE MATERIALS PRIOR TO PLANTING.
3. ALL CONTAINERIZED PLANT STOCK SHALL BE VIGOROUS, FREE OF DISEASE AND PESTS, EVENLY FORMED, AND BE FULLY ROOTED IN THE CONTAINER IN WHICH THEY ARE DELIVERED. ALL PLANTS SHALL FOLLOW ANSI Z60.1 STANDARDS FOR NURSERY STOCK FOR CONTAINER SIZE, HEIGHT, ETC.
4. CONTRACTOR SHALL WATER-SETTLE PLANTING HOLES TO REMOVE AIR POCKETS PRIOR TO SPREADING MULCH. DO NOT COVER FOLIAGE OR ROOT CROWN OF GROUNDCOVER PLANTS.

SIMPLIFIED DESIGN APPROACH



1. Setbacks: 5' along property lines except next to right-of-way; 10' from building foundations.
2. Slope: Maximum slope of 6% (facility bottom).
3. Overflow: Overflow elevation must allow for 2" of freeboard, minimum. Protect from debris and sediment with strainer or grate.
4. Piping: Conform with Oregon Plumbing Specialty Code (OPSC) requirements.
5. Drain Layer: 4" of $\frac{3}{4}$"-1 $\frac{1}{2}$" washed drain rock. Filter aggregate layer: 2-3" of $\frac{3}{8}$"-No.10 washed angular aggregate.
6. Blended Soil: Use BES' standard soil blend for stormwater facilities (SWMM Section 6.3) unless otherwise approved. Install minimum of 24" of blended soil.
7. Vegetation: Refer to plant list in SWMM Section 3.5. Minimum container size is 1 gal. Number of plantings per 100sf of facility area:
   - Zone A (wet): 80 herbaceous plants OR 72 herbaceous plants and small shrubs.
   - Zone B (moderate to dry): 7 large to small shrubs AND 70 groundcover plants.

   The delineation between zone A and B shall be either at the outlet elevation or the check dam elevation, whichever is lowest.
8. Entrance Erosion Control: Install river rock, flagstone, or similar to dissipate the energy of incoming water at entrances and ends of downspout extensions.
9. Check Dams: Place check dams every 10' where slope exceeds 4%. Check dam ends must be keyed into the native soil a minimum of 12" (see SW-152).
10. Inspections: Call BDS NR Inspection Line, (503) 823-7000, request 487. 3 inspections required.

CONSTRUCTION REQUIREMENTS

Mark the location of future facilities, and fence or cover facility locations after excavation. Do not allow vehicular traffic, foot traffic, material storage, or heavy equipment within 10 feet of the infiltration area except as needed to excavate, grade, and construct the facility. Do not allow entry of runoff or sediment during construction.

– DRAWING NOT TO SCALE –

Bureau of Environmental Services

STORMWATER MANAGEMENT TYPICAL DETAILS FOR PRIVATE PROPERTY

UNLINED BASIN SW-150

9-2-20

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