DRAWINGS FOR:

STRONG HEIGHTS SUBDIVISION

TAX LOTS: 083W11A00100
083W11A00200
083W11A00300

FOR:

WARD DEVELOPMENT, LLC
6998 Chakarun Lane SE
Salem, OR 97306

Steve Ward
503-931-3460
sward@westech-eng.com

DRAWING INDEX

811
Know what's below.
Call before you dig.

ENGINEER:

WESTECH ENGINEERING, INC.
3841 Fairview Industrial Dr SE, Suite 100
Salem, Oregon 97302

Steve Ward, PE
Phone: (503) 585-2474
Email: sward@westech-eng.com

SURVEYOR:

BARKER SURVEYING
3657 Kashmir Way SE
Salem, Oregon 97317

Greg Wilson, PLS
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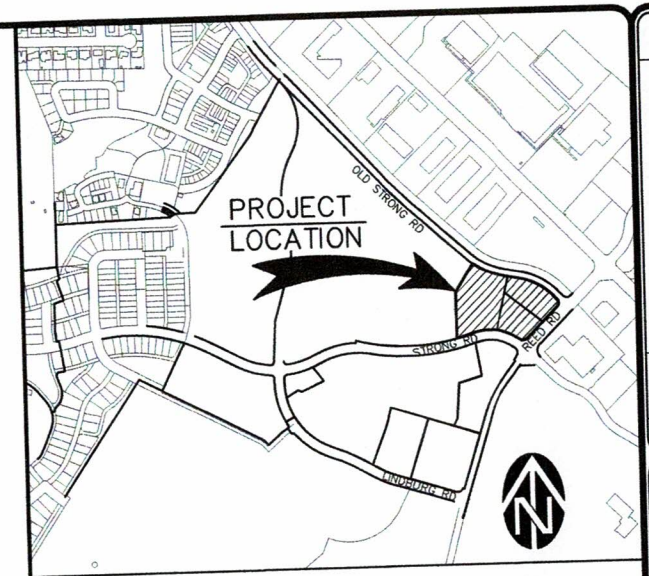
GEOTECHNICAL ENGINEER:

GEO ENGINEERS
333 High Street NE Suite 102
Salem, Oregon 97301

Julio Vela, PE
Phone: (971) 304-3078
jvela@geoengineers.com



VICINITY MAP

GENERAL LEGEND

ITEM	PROPOSED	EXISTING
SANITARY SEWER		SS
STORM DRAIN		SD
WATER		W
GAS		G
TELEPHONE		T
POWER		P
FENCE	X X	X X
BARRICADE		
TELEPHONE MANHOLE		T
TELEPHONE PEDESTAL		TEL
SANITARY SEWER MANHOLE	S	S
STORM DRAIN MANHOLE	D	D
CATCH BASIN		
FIRE HYDRANT AND VALVE		
WATER METER		□
WATER VALVE	⊗	⊗
POWER POLE	○	○
POWER POLE W/ANCHOR	○→	○→
POLE W/LUMINARE		
LIGHT POLE	☼	☼
SIGN POST	▬	▬
MAILBOX	▭	▭
HEDGE OR BRUSH		
TREES		

NO.	DATE	DESCRIPTION	BY
		REVISIONS	
1			

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 15, 1983
STEVEN A. WARD
11943
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

COVER SHEET,
VICINITY & LOCATION MAPS.
DRAWING INDEX

DRAWING
G-1

JOB NUMBER
2720.7000.0

LEGEND

- AU–RES ADAPTIVE RESTRICTED
- AU ADAPTIVE USE
- VC VILLAGE CENTER ZONING
- MI MEDIUM INTENSITY

PRINGLE COMMUNITY

OLD STRONG ROAD

FAIRVIEW INDUSTRIAL PARK

TL100

AU

TL300

TL200

CITY PARK

AU

LINDBURG DRIVE

LEGACY HEIGHTS

AU–RES

VILLAGE CENTER NE

VC

STRONG ROAD

AU

REED ROAD

FAIRVIEW ADDITION

VILLAGE CENTER NW

VC

VILLAGE CENTER SE

MWIC "THE GROVE"

VC

HERITAGE SCHOOL

AU

MI

OREGON BEHAVIORAL HOSPITAL

VILLAGE CENTER SW

VC

SIMPSON HILLS

0 50 100 200 (feet)

NO.	DATE	DESCRIPTION	BY
		REVISIONS	
1			

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0 1"
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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1987
STEVEN A. WARD
11947
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

OVERALL ZONING MAP

DRAWING
G–2

JOB NUMBER
2720.7000.0

CURVE DATA

	RADIUS	LENGTH	DELTA
(A)	280'	48.8'	N80°00'45"E
(B)	50'	89.6'	N12°43'39"W
(C)	547.4'	77.6'	N81°52'30"E
(D)	240'	144.4'	N55°31'00"E
(E)	120'	70.9'	N56°09'36"E

PARCEL SUMMARY

MIN LOT SIZE 2,590 SF
MAX LOT SIZE 5,370 SF

AVG LOT SIZE 3,531 SF

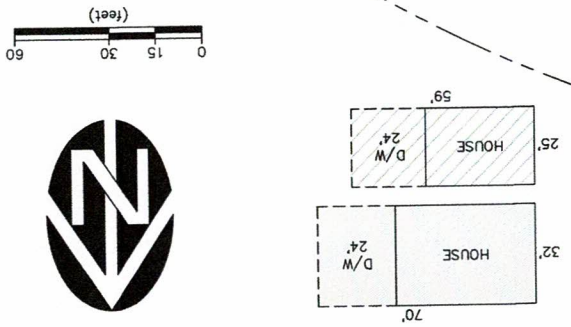
PARCEL SIZE	194,288 SF	4.46 AC
29 / 4.46 =	6.5 LOTS/AC	2.35 AC
HOA	91,884 SF	2.11 AC

ALL LOTS TO HAVE WORK UNIT OR ADU OVER THE GARAGE.

MINOR ADJUSTMENTS

1. DRIVEWAY DEPTH OF 24' VS 20' ALLOWED (20% VARIANCE).
2. ADD 2 LOTS TO THE AMENDED, AMENDED FAIRVIEW REFINEMENT PLAN II.

BUILDING/D/W ENVELOPE LEGEND



0 15 30 60 (feet)

WARD DEVELOPMENT, LLC	
STRONG HEIGHTS SUBDIVISION	
OVERALL LOT LAYOUT	
DRAWING	G-3
JOB NUMBER	2720.7000.0

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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 16, 1982
STEVEN A. WARD
11849
RENEWS: 6/30/2022

NO.	DATE	DESCRIPTION	BY
1			

REVISIONS

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

VERIFY SCALE
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IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
0 1"

GENERAL NOTES

1. Contractor shall procure, Owner to pay all costs for, and conform to all construction permits required by the City of Salem.

2. Oregon law requires the Contractor 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. Obtain copies of the rules by calling the center. (Note: the telephone number for the Oregon Utility Notification Center is 503-232-1987).

3. Contractor to notify City and all utility companies a minimum of 48 business hours (2 business days) prior to start of construction, and comply with all other notification requirements of the Approving Agency with jurisdiction over the work.

4. Contractor shall provide all bonds and insurance required by public and/or private agencies having jurisdiction. Where required by public and/or private agencies having jurisdiction, the Contractor shall submit a suitable maintenance bond prior to final payment.

5. For City Construction Permits, contact Salem Public Works Engineering Construction Management at 588-6211. For City Building Permits, contact Salem Permit Application Center at 588-6256.

6. Contractor to apply, Owner to pay for services at the Permit Application Center (PAC office) for work to be done by City forces on public mains.

7. All materials and workmanship for facilities in street right-of-way or easements shall conform to Approving Agencies' construction specifications wherein each has jurisdiction, including but not limited to the City, County, Oregon Health Division (OHD) and the Oregon Department of Environmental Quality (DEQ).

8. Unless otherwise approved by the Public Works Director, construction of all public facilities shall be done between 7:00 a.m. and 6:00 p.m., Monday through Saturday.

9. The Contractor shall perform all work necessary to complete the project in accordance with the approved construction drawings including such incidentals as may be necessary to meet the Approving Agencies' requirements and provide a completed project.

10. Any inspection by the City or other Approving Agency shall not, in any way, relieve the Contractor from any obligation to perform the work in strict compliance with the contract documents, applicable codes, and Approving Agency requirements.

11. Contractor shall maintain one complete set of approved drawings on the construction site at all times whereon he will record all approved deviations in construction from the approved drawings, as well as the station locations and depths of all existing utilities encountered. These field record drawings shall be kept up to date at all times and shall be available for inspection by the Approving Agency or Owner's Representative upon request. Failure to conform to this requirement may result in delay in payment and/or final acceptance of the project.

12. Upon completion of construction of all new facilities, Contractor shall submit a clean set of field record drawings containing all as-built information to the Engineer. All information shown on the Contractor's field record drawings shall be subject to verification. If significant errors or deviations are noted, an as-built survey prepared and stamped by a registered professional Land Surveyor shall be completed at the Contractor's expense.

13. Contractor shall procure and conform to DEQ stormwater permit No. 1200C for construction activities where 1 acre or more are disturbed.

14. The contractor shall retain and pay for the services of a registered Civil Engineer and/or Land Surveyor licensed in the State of Oregon to establish construction control and perform initial construction surveys to establish the lines and grades of improvements as indicated on the drawings. Staking for buildings, structures, curbs, gravity drainage pipes/structures and other critical improvements shall be completed using equipment accurate to 0.04 feet horizontally and 0.02 feet vertically, or better. Use of GPS equipment for final construction staking of these critical improvements is prohibited. The registered professional surveyor shall provide the design engineer with copies of all grade sheets for construction staking performed for the project.

TRAFFIC CONTROL

15. Contractor shall erect and maintain barricades, warning signs, traffic cones (and all other traffic control devices required) per City requirements in accordance with the current MUTCD (including Oregon amendments). Access to driveways shall be maintained at all times. All traffic control measures shall be approved and in place prior to any construction activity. Prior to any work in the existing public right-of-way, Contractor shall submit final traffic control plan to the Approving Agency for review and issuance of a Lane Closure or Work in Right-of-Way Permit.

16. Prior to any work in the existing right-of-way, Contractor shall submit final traffic control plan to City of Salem for review and issuance of lane closure permit. Contractor to obtain a lane closure permit before construction starts for any work within the existing public right-of-way, including public street improvements or driveway connections to existing streets.

TESTING AND INSPECTION:

17. For public and private improvements, the Contractor shall be responsible to ensure that all required or necessary inspections are completed by authorized inspectors prior to proceeding with subsequent work which covers or that is dependent on the work to be inspected. Failure to obtain necessary inspection(s) and approval(s) shall result in the Contractor being fully responsible for all problems and/or corrective measures arising from uninspected work.

18. Unless otherwise specified, the attached "Required Testing and Frequency" table outlines the minimum testing schedule for private improvements on the project. This testing schedule is not complete, and does not relieve the Contractor of the responsibility of obtaining all necessary inspections or observations for all work performed, regardless of who is responsible for payment. Cost for retesting shall be borne by the Contractor.

EXISTING UTILITIES & FACILITIES:

19. The location and descriptions of existing utilities shown on the drawings are compiled from available records and/or field surveys. The Engineer or utility companies do not guarantee the accuracy or the completeness of such records. Contractor shall field verify locations and sizes of all existing utilities prior to construction.

20. Utility locations are based on record information and should be field-verified. Call 1-800-332-2344 at least 48 hours prior to construction for on-site locating of utilities.

21. Contractor shall field verify location and depth of all existing utilities where new facilities cross. All utility crossings marked or shown on the drawings shall be potholed using hand tools or other non-invasive methods prior to excavating or boring. Contractor shall be responsible for exposing potential utility conflicts far enough ahead of construction to make necessary grade or alignment modifications without delaying the work. If grade or alignment modification is necessary, Contractor shall notify the Design Engineer, and the Design Engineer or the Owner's Representative shall obtain approval from the Approving Agency prior to construction.

22. The Contractor shall be responsible for locating and marking all existing survey monuments of record (including but not limited to property and street monuments) prior to construction. If any survey monuments are removed, disturbed or destroyed during construction of the project, the Contractor shall retain and pay for the services of a Registered Professional Surveyor licensed in the State of Oregon to reference and replace all such monuments prior to final payment. The monuments shall be replaced within a maximum of 90 days, and the County Surveyor shall be notified in writing as required by per ORS 209.150.

23. All facilities shall be maintained in-place by the Contractor unless otherwise shown or directed. Contractor shall take all precautions necessary to support, maintain, or otherwise protect existing utilities and other facilities at all times during construction. Contractor to leave existing facilities in an equal or better-than-original condition and to the satisfaction of the Approving Agency and Owner's Representative.

24. Utilities or interfering portions of utilities that are abandoned in place shall be removed by the Contractor to the extent necessary to accomplish the work. The Contractor shall plug the remaining exposed ends of abandoned utilities after appropriate verification procedures have taken place.

25. Contractor shall remove all existing signs, mailboxes, fences, landscaping, etc., as required to avoid damage during construction and replace them to existing or better condition.

26. Unless otherwise approved by the Approving Agency, all field tiles or drain lines intercepted or exposed during construction shall be connected to new storm lines, unless they are removed completely during construction, or are located and plugged at 50 foot maximum intervals uphill of the location intercepted. Any abandoned drain tiles downstream of the intercepting trenches shall be plugged with grout.

27. The Contractor shall be responsible for managing construction activities to ensure that public streets and right-of-ways are kept clean of mud, dust or debris. Dust abatement shall be maintained by adequate watering of the site by the Contractor.

GRADING, PAVING & DRAINAGE:

28. All materials and workmanship for compaction, fills, grading, rocking and paving within the public right-of-way shall conform to City of Salem Standard Construction Specifications.

29. Unless otherwise noted, all grading, rocking and paving to conform to Oregon Standard Specifications for Construction (OSSC/ODOT/APWA), 2008 edition.

30. Clear and grub within work limits all surface vegetation, trees, stumps, brush, roots, etc. Do not damage or remove trees except as approved by the Owner's Representative or as shown on the drawings. Protect all roots two inches in diameter or larger.

31. Strip work limits, removing all organic matter, which cannot be compacted into a stable mass. All trees, brush, and debris associated with clearing, stripping or grading shall be removed and disposed of off-site.

32. For public and private improvements, except as otherwise allowed by the specifications required by Salem Standard Construction Specifications, drawing details or notes, immediately following stripping and grading operations, compact subgrade to 92% of the maximum dry density per AASHTO T-180 test method (Modified Proctor). Subgrade must be inspected and approved by the Owner's authorized representative before placing, engineered fills or fine grading for base rock.

33. Unless otherwise required by Salem Standard Construction Specifications, Engineered fills shall be constructed and compacted in 6" lifts over approved subgrade. All fills shall be engineered and comply with the Oregon Structural Specialty Code, with each lift compacted to 92% of the maximum dry density per AASHTO T-180 test method (Modified Proctor).

34. For private improvements, unless otherwise required by Salem Standard Construction Specifications, Granular baserock shall conform to the requirements of OSSC (ODOT/APWA) 02630.10 (Dense Graded Base Aggregate), with no more than 10% passing the #40 sieve and no more than 5% passing the #200 sieve.

35. Compact granular baserock to 92% of the maximum dry density per AASHTO T-180 test method (Modified Proctor). Written baserock compaction test results from an independent testing laboratory must be received by the Owner's authorized representative before placing AC pavement, and a finished rock grade proof-roll (witnessed by the Owners authorized representative) must be performed.

36. For private improvements, unless otherwise required by Salem Standard Construction Specifications, A.C. pavement shall conform to OSSC (ODOT/APWA) 00745 (Hot Mixed Asphalt Concrete Pavement) for standard duty mix. Unless otherwise specified or shown on the drawings, base lifts shall be 3/4" dense graded mix, while wearing courses shall be 1/2" dense graded mix. Unless otherwise specified or shown on the drawings, A.C. pavement for parking lots and streets shall be Level 2 mix (50 blow Marshall) per OSSC (ODOT/APWA) 00744.13. A.C. Pavement shall be compacted to a minimum of 91% of maximum density as determined by the Rice standard method. Written AC pavement compaction test results from an independent testing laboratory must be received by the Owner's authorized representative before final payment.

37. Pavement surface shall be a smooth, well-sealed, tight mat without depressions or bird baths. Bony or open graded pavement surfaces shall be repaired to the satisfaction of the Owner's authorized representative, prior to final acceptance of the work.

38. For private improvements, unless otherwise required by Salem Standard Construction Specifications, HMAC mixtures shall be placed only when the surface is dry and weather conditions are such that proper handling, finishing and compaction can be accomplished. In no case shall bituminous mixtures be placed when the surface temperature is below the minimum established under 2008 OSSC (ODOT/APWA) 00744.40 (AC - Season and Temperature Limitations) or the project specifications, whichever is more stringent.

39. Contractor shall protect new pavement against traffic as required, until it has cooled sufficiently to avoid tracking.

40. Unless otherwise shown on the drawings or details, straight grades shall be run between all finish grade elevations and/or finish contour lines shown (exception: where grades shown cross sidewalks, slopes shall be adjusted to ensure that maximum allowable sidewalk cross slopes are not exceeded).

41. Finish pavement grades at transition to existing pavement shall match existing pavement grades or be feathered past joints with existing pavement as required to provide a smooth, free draining surface.

42. All existing or constructed manholes, cleanouts, monument boxes, gas valves, water valves and similar structures shall be adjusted to match finish grade of the pavement, sidewalk, landscaped area or median strip wherein they lie. Verify that all valve boxes and risers are clean and centered over the operating nut.

43. Unless otherwise shown on the drawings, no cut or fill slopes shall be constructed steeper than 3H:1V.

44. Contractor shall seed and mulch (uniformly by hand or hydroseed) all exposed slopes and disturbed areas which are not scheduled to be landscaped, including trench restoration areas. If the Contractor fails to apply seed and mulch in a timely manner during periods favorable for germination, or if the seeded areas fail to germinate, the Owner Representative may (at his discretion) require the Contractor to install sod to cover such disturbed areas.

CURBS & SIDEWALKS:

45. Unless otherwise shown or indicated on the drawings, 6-inches nominal curb exposure used for design of all parking lot and street grades.

46. Where new curbing connects to existing curbing or is installed along existing streets or pavement, the gutter grade shall match the existing street grades so as to allow drainage from the street to the gutter and through any transitions. The Contractor shall notify the Owner's Representative in writing of any grade discrepancies or problems prior to curb placement.

47. Contractor shall construct all handicap access ramps in accordance with current ADA requirements.

48. Sidewalks shall be a minimum of 4-inches thick and standard residential driveways shall be a minimum of 6-inches thick. Commercial use driveways and alley approaches shall be minimum 8-inches thick. All curbs, sidewalks and driveways shall be constructed using 3300-psi concrete, and shall be cured with Type 1 or Type 1D clear curing compound. All sidewalks shall be ADA compliant.

49. Curb & sidewalk concrete shall be placed only during periods when it will not be damaged by rain (protect unhardened concrete from precipitation). Concrete shall not be placed on frozen baserock. Do not begin concrete placement until temperature in the shade is a minimum of 35°F and rising, and stop placement if air temperature falls below 35°F. Protect concrete from freezing for a minimum of 5 days after placement per OSSC (ODOT/APWA) 0000440.40.d & 00756.40 or the project specifications, whichever is more stringent.

50. Contraction joints shall be installed directly over any pipes that cross under the sidewalk, to control cracking. In general, cracks in new curbs or sidewalks (at locations other than contraction joints) are not acceptable, and cracked panels shall be removed & replaced unless otherwise approved by the Approving Agency and the design engineer.

51. All sidewalks shall be ADA compliant. Direction of sidewalk cross slope shall conform with the slope direction shown on the grading plan. Sidewalk cross slopes shall not exceed 1:67 (1.5%) nor be less than 1%. Longitudinal slope shall not exceed 1:20 (5%).

52. Where trench excavation requires removal of PCC curbs and/or sidewalks, the curbs and/or sidewalks shall be sawcut and removed at a tooled joint unless otherwise authorized in writing by the Approving Agency. The sawcut lines shown on the drawings are schematic and not intended to show the exact alignment of such cuts.

53. Unless otherwise shown on the drawings, areas along curbs and sidewalks shall be backfilled with approved topsoil, as well as being seeded and mulched (or hydroseeded).

PIPED UTILITIES:

54. All tapping of existing sanitary sewer, storm drain mains, and manholes must be done by City forces.

55. All tapping to be done by City of Salem forces. To schedule water/sewer/storm taps call 503/588-6333. Taps are generally available within two business days.

56. The Contractor shall have appropriate equipment on site to produce a firm, smooth, undisturbed subgrade at the trench bottom, true to grade. The bottom of the trench excavation shall be shall be smooth, free of loose materials or tooth grooves for the entire width of the trench prior to placing the granular bedding material.

57. All pipes shall be bedded with minimum 6-inches of 3/4"-0 crushed rock bedding and backfilled with compacted 3/4"-0 crushed rock in the pipe zone (crushed rock shall extend a minimum of 12-inches over the top of the pipe in all cases). Unless CDF or other backfill is shown or noted on the drawings, crushed rock trench backfill shall be used under all improved areas, including pavement, sidewalks, foundation slabs, buildings, etc.

58. Granular trench bedding and backfill shall conform to the requirements of OSSC (ODOT/APWA) 02630.10 (Dense Graded Base Aggregate), 3/4"-0. Unless otherwise shown on the drawings, compact granular backfill to 92% of the maximum dry density per AASHTO T-180 test method (Modified Proctor).

59. Contractor shall arrange to abandon existing sewer and water services not scheduled to remain in service in accordance with approving agency requirements.

60. All piped utilities abandoned in place shall have all openings closed with concrete plugs with a minimum length equal to 2 times the diameter of the abandoned pipe.

61. The end of all utility service lines shall be marked with a 2-x-4 painted white and wired to pipe stub. The pipe depth shall be written on the post in 2" block letters.

62. All non-metallic water, sanitary and storm sewer piping shall have an electrically conductive insulated 12 gauge solid core copper tracer wire the full length of the installed pipe using blue wire for water and green wire for storm and sanitary piping. Tracer wire shall be extended up into all valve boxes, catch basins, manholes and lateral cleanout boxes. Tracer wire penetrations into manholes shall be within 18 inches of the rim elevation and adjacent to manhole steps. The tracer wire shall be tied to the top manhole step or otherwise supported to allow retrieval from the outside of the manhole. All tracer wire splices shall be made with waterproof splices or waterproof/corrosion resistant wire nuts.

63. No trenches in sidewalks, roads, or driveways shall be left in an open condition overnight. All such trenches shall be closed before the end of each workday and normal traffic and pedestrian flows restored.

64. Before mandrel testing, TV inspection or final acceptance of gravity pipelines, all trench compaction shall be completed and all sewers and storm drains flushed & cleaned to remove all mud, debris & foreign material from the pipelines, manholes and/or catch basins.

65. Where future extensions are shown upstream of new manholes (sewer or storm), catch basins or junction boxes, pipe stubs (with gasketed caps) shall be installed at design grades to a point 2' minimum outside of the structure.

WATER SYSTEM:

66. City forces to operate all valves, including fire hydrants, on existing public mains.

67. All water mains shall be class 52 ductile iron.

68. All fittings 4-inches through 24-inches in diameter shall be ductile iron fittings in conformance with AWWA C-153 or AWWA C-110. The minimum working pressure for all MJ cast iron or ductile iron fittings 4-inches through 24-inch in diameter shall be 350 psi for MJ fittings and 250 psi for flanged fittings.

69. All water mains to be installed with a minimum 36 inch cover to finish grade unless otherwise noted or directed. Water service lines shall be installed with a minimum 30-inch cover. Deeper depths may be required as shown on the drawings or to avoid obstructions.

70. Unless otherwise shown or approved by the Engineer, all valves shall be flange connected to adjacent tees or crosses.

71. Thrust restraint shall be provided on all bends, tees and other direction changes per Approving Agency requirements and as specified or shown on the drawings.

72. Water service pipe 2-inch and smaller on the public side of the meter shall be Type K soft copper tubing conforming to ASTM B-88. Water service pipe 3-inch and larger shall conform to the construction drawings and approving agency standards.

73. Unless otherwise noted, water service pipe 3-inch and smaller on the private side of the meter shall be Schedule 40 PVC. Water service pipe 4-inches and larger on the private side of the meter shall be ASTM D2241 DR 21 (200 psi), with rubber gaskets conforming to ASTM F477. Unless otherwise specified, private water service piping shall be hydrostatically pressure tested to a minimum of 150% of the maximum static pressure at the site. All materials and workmanship for all private water lines, including water lines located within any building envelope, shall be installed in conformance with Uniform Plumbing Code requirements. All water service pipe on the private side of the meter shall be installed by a licensed plumber in accordance with Uniform Plumbing Code requirements.

74. Domestic and fire backflow prevention devices and vaults shall conform to requirements of public and/or private agencies having jurisdiction. The Contractor shall be responsible for having backflow devices tested and certified prior to final acceptance of the work.

75. Contractor shall provide all necessary equipment and materials (including plugs, blowoffs, valves, service taps, etc.) required to flush, test and disinfect waterlines per the Approving Agency requirements.

76. The work shall be performed in a manner designated to maintain water service to buildings supplied from the existing waterlines. In no case shall service to any main line or building be interrupted for more than four (4) hours in any one-day. Contractor shall notify the Approving Agency and all affected residents and businesses a minimum of 24 business hours (1 business day) before any interruption of service.

77. Where new waterlines cross below or within 18-inches vertical separation above a sewer main or sewer service lateral, center one full length of waterline pipe at point of crossing the sewer line or sewer lateral. In addition (unless otherwise approved in writing by the Approving Agency, existing sewer mains and/or service laterals within this zone shall be replaced with a full length of Class 50 Ductile Iron or C-900 PVC pipe (DR 18) centered at the crossing in accordance with OAR 333-061 and Approving Agency requirements. Connect to existing sewer lines with approved rubber couplings. Example: For an 8-inch waterline with 36-inches cover, 4-inch service lateral inverts within 5.67-feet (68-inches) of finish grade must be DI or C-900 PVC at the crossing.

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUNE 15, 1983
STEVEN A. WEBER
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

CONSTRUCTION NOTES

DRAWING
G-4

JOB NUMBER
2720.7000.0

78. All waterlines, services and appurtenances shall be pressure tested for leakage. All testing shall conform to requirements as outlined in the specifications, Approving Agency standards and/or testing forms. The hydrostatic test shall be performed with all service line corporation stops open and meter stops closed, and with all hydrant line valves open. Prior to the start of each pressure test, the position of all mainline valves, hydrant line valves and service line corporation stops in the test segment shall verified.

79. After the pressure test and prior to disinfecting, the water lines shall be thoroughly flushed through hydrants, blow offs or by other approved means.

80. Disinfection & Bacteriological Testing. All water mains and service lines shall be chlorine disinfected per Approving Agency requirements, AWWA C-651 or OAR 333-061 (25 mg/L minimum chlorine solution, 24 hours contact time), whichever is more stringent. Unless otherwise approved by the Approving Agency, a Representative from the Approving Agency shall witness the application of the chlorine solution and the chlorine testing at the end of the 24 hour contact period. After the 24 hour chlorine contact period, the free chlorine concentration shall be checked, and if it is found to be 10 mg/L or more, the chlorine solution shall be drained (otherwise the line shall be rechlorinated), the waterline flushed with potable water, and a minimum of two consecutive samples taken at least 24 hours apart shall be collected from the waterline for microbiological analysis (ie. one sample immediately after flushing, and another sample 24 hours later). Contractor to pay for laboratory analysis of water samples taken under the supervision of the Approving Agency. If the results of both analyses indicate that the water is free of coliform organisms, the waterline may be placed in service. Should the initial treatment prove ineffective, the chlorination shall be repeated until confirmed tests show acceptable results.

81. Disinfection of Connections. For connections which cannot be disinfected with the waterline mainlines as noted above, all fittings, valves and appurtenances, including tool surfaces which will come in contact with potable water, shall be thoroughly cleaned by washing with potable water and then swabbed or sprayed with a one percent (1%) hypochlorite solution (10,000 mg/L) in accordance with the requirements of AWWA C-651 and OAR 333-061.

SEWER & STORM MANHOLES:

82. All precast manholes shall be provided with integral rubber boots. Where manholes without integral rubber boots are approved by the Owner's Representative and Approving Agency, a pipe joint shall be provided on all mainlines within 1.5 feet of the outside face of the manhole. Where required by Public Works, watertight lockdown lids required on all manholes outside of public right-of-way.

83. Openings for connections to existing manholes shall be made by core-drilling the existing manhole structure, and installing a rubber boot. Connections shall be watertight and shall provide a smooth flow into and through the manhole with no ponding. Small chipping hammers or similar light tools which will not damage or crack the manhole base may be used to shape channels, but may be used to enlarge existing openings only if authorized in writing by the Owner's Representative. Use of pneumatic jackhammers shall be prohibited.

84. Manhole channels depths (sewer & storm) shall be to the heights shown on the drawings, but in no case shall be the channel depth be less than 2/3 of the pipe diameter. Channels, as well as shelves between the channels and the manhole walls, shall be sloped to drain per plan details.

85. Manholes constructed over existing sanitary sewers shall conform to the requirements of OSSC (ODOT/APWA) 490.41, Manholes over Existing Sewers. The existing pipe shall not be broken out until after the completion of the manhole test.

SANITARY SEWER SYSTEM:

86. Unless otherwise specified, sanitary sewer pipe shall be solid wall PVC in conformance with ASTM D3034, SDR 35 (≤15") or ATSM F-679, PS 46 (≥18"). Minimum stiffness shall be 46 psi per ASTM D-2412 and joint type shall be elastomeric gasket conforming to ASTM D-3212. All other appurtenances and installation to conform to the Approving Agency's specifications. All materials and workmanship for all private sanitary sewers, including sewers located within any building envelope, shall be installed in conformance with Uniform Plumbing Code requirements.

87. Unless otherwise specifically noted on the drawings, manufactured fittings (tee or wye per Approving Agency) shall be used for all lateral connections to new sewer mainlines.

88. Contractor shall provide all necessary materials, equipment and facilities to test sanitary sewer pipe and appurtenances for leakage in accordance with testing schedule herein or the Approving Agency's construction standards, whichever are more stringent. Sanitary sewer pipe and appurtenances shall be tested for leakage. Leakage tests shall include an air test of all sewer mains and laterals and vacuum testing of the manholes. Manhole testing shall be performed after completion of AC pavement and final surface restoration.

89. After manhole channeling and prior to mandrel testing and/or TV inspection, flush and clean all sewers, and remove all foreign material from the mainlines and manholes. Failure to clean all dirt, rock and debris from pipelines prior to TV inspection will result in the need to re-clean and re-TV the sewer lines.

90. Contractor shall conduct deflection test of flexible sanitary sewer pipes by pulling an approved mandrel through the completed pipeline following trench compaction. The diameter of the mandrel shall be 95% of the initial pipe diameter. Test shall be conducted not less than 30 days after the trench backfilling and compaction has been completed, unless otherwise approved by the Approving Agency.

91. Upon completion of all sanitary sewer construction, testing and repair, the Contractor shall conduct a color TV acceptance inspection of all mainlines in accordance with OSSC (ODOT/APWA) 445.74 to determine compliance with grade requirements of OSSC (ODOT/APWA) 445.40.b. The TV inspection shall be conducted by an approved technical service which is equipped to make audio-visual recordings of the TV inspections on DVD (VHS video tape acceptable only upon prior written approval by Public Works). Unless otherwise required by the Approving Agency, a standard 1-inch diameter ball shall be suspended in front of the camera during the inspection to determine the depth of any standing water. Sufficient water to reveal low areas or reverse grades shall be discharged into the pipe immediately prior to initiation of the TV inspection. The DVD and written report shall be delivered to the Approving Agency.

STORM DRAIN SYSTEM:

92. Storm sewer pipe materials shall conform to the construction drawings and Approving Agency's requirements. Unless otherwise noted or shown on the drawings, storm sewer pipe materials with watertight joints shall conform to the attached "Storm Pipe Table". Contractor shall use uniform pipe material on each pipe run between structures unless otherwise directed or approved. Jointed HDPE pipe shall not be used for slopes exceeding ten percent (10%). All materials and workmanship for all private storm drains, including storm drains located within any building envelope, shall be installed in conformance with Uniform Plumbing Code requirements.

93. Contractor shall designate the pipe material actually installed on the field record drawings and provide this information for inclusion on the as-built drawings.

94. Catch basins and junction boxes shall be set square with buildings or with the edge of the parking lot or street wherein they lie. Storm drain inlet structures and paving shall be adjusted so water flows into the structure without ponding water.

95. Unless otherwise approved by the Engineer, all storm drain connections shall be by manufactured tees or saddles.

96. Unless otherwise shown on the drawings, all storm pipe inlets & outfalls shall be beveled flush to match the slope wherein they lie.

97. Sweep (deflect) storm sewer pipe into catch basins and manholes as required. Maximum joint deflection shall not exceed 5 degrees or manufacturers recommendations, whichever is less.

98. Unless otherwise shown or directed, install storm sewer pipe in accordance with manufacturer installation guidelines.

99. After manhole channeling and prior to mandrel testing or final acceptance, flush and clean all sewers, and remove all foreign material from the mainlines, manholes and catch basins.

100. Mandrel Testing. Contractor shall conduct deflection test of flexible storm sewer pipes by pulling an approved mandrel through the completed pipeline following trench compaction. The diameter of the mandrel shall be 95% of the initial pipe diameter. Test shall be conducted not more than 30 days after the trench backfilling and compaction has been completed.

101. Prior to acceptance, the Owner's Representative may lamp storm lines upstream & downstream of structures to verify that the pipes are clean and there is no grout or concrete in the mainlines, and that there are no observable bellies in the line. When necessary, sufficient water to reveal low areas shall be discharged into the pipe by the Contractor prior to any such inspection by the Owner's Representative or the Approving Agency.

STREET LIGHTS:

102. Street lights shall be installed after all other earthwork and public utility installations are completed and after rough grading of the property is accomplished to prevent damage to the poles.

103. Streetlight poles shall be set to a depth as specified by the manufacturer, but not less than 5 feet.

104. Street light poles shall be installed within one degree (1°) of plumb.

105. Contractor and franchise utility companies shall conform to SCS Section 309 for all street lighting installation.

106. Contractor shall coordinate with utility companies and pay all costs for procurement, installation, wiring, hook up and activation of streetlights.

FRANCHISE & PRIVATE UTILITIES:

107. Unless otherwise shown on the drawings or approved by jurisdiction having authority, all new franchise and private utilities (power, cable TV, telephone, gas, data, communication, control, alarms, etc.) shall be installed underground. Installation of such utilities or associated conduits in a common trench with public water, sanitary sewer, or storm sewer is prohibited.

108. Contractor shall coordinate with gas, power, telephone, and cable TV Company for location of conduits in common trenches, as well as location or relocation of vaults, pedestals, etc. The Contractor shall be responsible for providing franchise utility companies adequate written notice of availability of the open trench (typically 10 days minimum), and reasonable access to the open trench. Unless otherwise approved in writing by the Approving Agency, all above-grade facilities shall be located in PUEs (where PUEs exist or will be granted by the development), and otherwise shall be placed in a location outside the proposed sidewalk location.

109. Unless otherwise approved by the Approving Agency, installation of private utilities (including either franchise utilities or private water, sewer or storm services) in a common trench with or within 3 feet horizontally of and paralleling public water, sanitary sewer or storm drains is prohibited.

110. Power, telephone and TV trenching and conduits shall be installed per utility company requirements with pull wire. Contractor shall verify with utility company for size, location and type of conduit before construction, and shall ensure that trenches are adequately prepared for installation per utility company requirements. All changes in direction of utility conduit runs shall have long radius steel bends.

111. Contractor shall notify and coordinate with franchise utilities for removal or relocation of power poles, vaults, pedestals, manholes, etc. to avoid conflict with Public utility structures, fire hydrants, meters, sewer or storm laterals, etc.

REQUIRED TESTING AND FREQUENCY TABLE		Party Responsible for payment	
		Contractor	Others (see note 1)
Streets, Fire Lanes, Common Driveways, Parking Lots, Pads, Fills, etc.			
Subgrade	1 Test/4000 S.F./Lift (4 min)	✓ See note 2 & note 3	
Engineered Fills	1 Test/4000 S.F./Lift (4 min)	✓ See note 2 & note 5	
Baserock	1 Test/4000 S.F./Lift (4 min)	✓ See note 2 & note 3	
Asphalt	1 Test/6000 S.F./Lift (4 min)	✓ See note 2	
Piped Utilities, All			
Trench Backfill	1 Test/200 Foot Trench/Lift (4 min)	✓ See note 2	
Trench AC Restoration	1 Test/300 Foot Trench (4 min)	✓ See note 2	
Water			
Pressure Test	(to be witnessed by Owner's Representative or approving agency)	✓ See note 4	
Bacterial Water Test	Per Oregon Health Division	See note 2	✓
Chlorine Residual Test	Per City Requirements		✓
Sanitary Sewer			
Air Test	Per City or APWA Requirements, whichever is more stringent	✓ See note 4	
Mandrel	95% of actual inside diameter	✓ See note 4	
TV Inspection	All. Lines must be cleaned prior to TV work		✓
Manhole	(1) Vacuum test per manhole, witnessed by Owner's Representative or approving agency	✓ See note 2	
Storm			
Mandrel	95% of actual inside diameter	✓ See note 4	
Concrete, Block, etc.			
Slump, Air & Cylinders for structural & reinforced concrete, equipment slabs, curbs, sidewalks & PCC pavements. Unless otherwise specified, one set of cylinders per 100 cubic yards (or portion thereof) of each class of concrete placed per day. Slump & air tests required on same load as cylinders.		✓ See note 2	
Building permit inspection & Special Inspection for structural concrete, reinforced masonry, epoxy anchors, etc. as required by applicable State Building Codes.		✓ See note 6	
Retaining Walls			
Building permit inspection and Special Inspection, as well as compaction testing on backfill, all in conformance with applicable State Building Code requirements		✓ See note 5 & note 6	

Note 1: "Others" refers to Owner's authorized Representative or Approving Agency as applicable. Contractor responsible for scheduling testing. All testing must be completed prior to performing subsequent work.

Note 2: Testing must be performed by an approved independent testing laboratory.

Note 3: In addition to in-place density testing, the subgrade and base rock shall be proof-rolled with a loaded 10 yard dump truck provided by the Contractor. Baserock proofroll shall take place immediately prior to (within 24 hours of) paving, and shall be witnessed by the Owner's authorized Representative or approving agency. Location and pattern of proofroll to be as directed by said Owner's authorized Representative or approving agency.

Note 4: To be witnessed by the Owner's Representative or approving agency. The Contractor shall perform pretests prior to scheduling witnessed waterline or sanitary sewer pressure tests, or pipeline mandrel test.

Note 5: The approved independent laboratory retained by the Contractor shall provide a certification (stamped by an engineer licensed in the State of Oregon) that the subgrade was prepared and all engineered fills were placed in accordance with the provisions of the construction drawings and the contract documents.

Note 6: Regardless of who is responsible for payment, the Contractor is responsible for scheduling and coordinating any and all required inspections and Special Inspections as required by applicable building codes or jurisdictions having authority.

STORM PIPE TABLE	
Cover Depth	6" – 18" Diameter
Less than 2' Cover	Class 50 ductile iron pipe with bell and spigot joints and rubber gasket.
2' to 2-1/2' Cover	Pipe specified for lesser cover depths –or– Class 3, ASTM C-14 non-reinforced concrete pipe with bell and spigot joints & rubber gaskets, ASTM 150 Type II cement. –or– PVC pipe conforming to AWWA C900 DR 18 (6"–12") or AWWA C-905 (14"–18") with bell and spigot joints and rubber gasket
2-1/2' to 15' Cover	Pipe specified for lesser cover depths –or– PVC pipe conforming to ASTM D-3034 PVC SDR 35 (6"–15") or ASTM F-679 PVC solid wall SDR 35 (18") with bell and spigot joints and rubber gasket. –or– HDPE (high density polyethlene) pipe conforming to AASHTO M-252, (8"–10") or AASHTO M-294 (12"–18"). For slopes less than 6% the pipe shall be ADS N-12 IB ST, Hancor Sure-Lok F477, or approved equal. For slopes greater than 6% the pipe shall be ADS N-12 IB ST, Hancor Blue Seal, or approved equal with watertight pressure testable fittings, –except– jointed HDPE (high density polyethylene) pipe referenced above not permitted for depth to invert greater than 12 feet.
More than 15' Cover	See construction drawings.
Cover Depth	**21" – 42" Diameter**
Less than 2' Cover	Class 50 ductile iron pipe with bell and spigot joints and rubber gasket.
2' to 2-1/2' Cover	Pipe specified for lesser cover depths –or– Class IV ASTM C-76 reinforced concrete pipe with bell and spigot joints and rubber gasket, ASTM 150, Type II cement.
2-1/2' to 15' Cover (**HDPE allowed up to 60" diameter subject to max. depth limits listed)	Pipe specified for lesser cover depths –or– ASTM F-679 PVC solid wall SDR 35 pipe with bell and spigot joints and rubber gasket –or– HDPE (high density polyethlene) pipe conforming to AASHTO M-294. For slopes less than 6% the pipe shall be ADS N-12 IB ST, Hancor Sure-Lok F477, or approved equal. For slopes greater than 6% the pipe shall be ADS N-12 IB WT, Hancor Blue Seal, or approved equal with watertight pressure testable fittings, –except– (**)jointed HDPE (high density polyethylene) pipe referenced above not permitted for depth to invert greater than 12 feet.
More than 15' Cover	See construction drawings.
Greater than 30" diameter and other pipe materials: Case by case basis.	

THE PROPOSED SUBDIVISION HAS BEEN IDENTIFIED AS A SITE WITH POTENTIAL ARCHEOLOGICAL ARTIFACTS. A COPY OF THE INADVERTENT DISCOVERY PLAN (IDP) FOR THE SITE WILL BE PROVIDED TO THE CONTRACTOR. THE CONTRACTOR AND HIS EMPLOYEES SHALL FAMILIARIZE THEMSELVES AND CONFORM TO ALL REQUIREMENTS OF THE IDP DURING ALL EXCAVATION OPERATIONS.

SEE DWG ST-2 FOR PUBLIC WORKS DESIGN EXCEPTIONS.

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING 1"
0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER 11184 OREGON JULY 15, 1983 STEVEN A. WEBER RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

CONSTRUCTION NOTES

DRAWING G-5

JOB NUMBER 2720.7000.0

DEQ EROSION CONTROL STANDARD 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.iii.)
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)

Rev. 12/15/15 By: Krista Ratliff

YEAR: / MONTH:	'21 09	'21 10	'21 11	'21 12	'22 01	'22 02	'22 03	'22 04	'22 05	'22 06	'22 07	'22 08
CLEARING	X											
EXCAVATION												
GRADING	X	X										
CONSTRUCTION	X	X	X	X	X	X	X	X				
SEDIMENT CONTROLS:												
Silt Fencing	X	X	X	X	X	X	X	X				
Sediment Traps	X	X	X	X	X	X	X	X				
Sediment Basins												
Storm Inlet Protection												
Drainage Swales												
Check Dams												
Contour Furrows												
Terracing												
Pipe Slope Drains												
Rock Outlet Protection												
Gravel Construction Entrance	X	X	X	X	X	X	X	X				
Grass-lined Channel (Turf Reinforcement Mats)												
Protection of trees with construction fences												
Temporary Seeding and Planting												
Permanent Seeding and Planting												
Other:												

CONTROL MEASURE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
Silt Fencing	X	X	X	X	
Construction Entrance	X	X			
Sediment Traps			X	X	
Storm Inlet Protection			X	X	
Concrete Washout			X	X	
Rock Outlet Protection			X	X	X
Permanent Seeding and Planting					X

Phase 1: Prior to Ground Disturbance
Phase 2: After Completion of Rough Grading
Phase 3: After Installation of Storm Facilities
Phase 4: After Paving & Construction
Phase 5: After Project Completion and Cleanup

INSPECTION FREQUENCY FOR BMP

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 whether 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 seven (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 discharge likely.

BMP Rationale

A comprehensive list of available Best Management Practices (BMP) options based on DEQ's 1200-C Permit Application and ESCP Guidance Document has been reviewed to complete this Erosion and Sediment Control Plan. Some of the above listed BMPs 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 ESCP, an Action Plan will be submitted.

SOIL TYPE(S): PER MARION CO. SOIL SURVEY THE SITE SOILS INCLUDE, "ABIQUA SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES, BASHAW CLAY, MCALPIN SILTY CLAY LOAM, 0 TO 3 PERCENT SLOPES, NEKIA SILTY CLAY LOAM, 20 TO 30 PERCENT SLOPES, SANTIAM SILT LOAM, 3 TO 6 PERCENT SLOPES, SILVERTON SILT LOAM, 2 TO 12 PERCENT SLOPES, & WAPATO SILTY CLAY LOAM."

EROSION HAZARD: PER MARION CO. SOIL SURVEY EROSION HAZARD RANGES FROM "SLIGHT" TO "SEVERE".

SITE AREA: 28.18 AC

SUPPLEMENTAL WESTECH NOTES:

1. Erosion control measures shall be maintained in such a manner as to ensure that sediment and sediment-laden water does not enter the drainge system, roadways, or violate applicable water quality standards.
2. The erosion contro construction, maintenance, replacement and upgrading of the erosion control facilities is the responsibility of the Contractor until all construction is completed and approved, and permanent erosion control (i.e. vegetation/landscaping) is established on all disturbed areas.
3. All recommended erosion control procedures are dependent on construction methods, staging, site conditions, weather and scheduling. During the construction period, erosion control facilities shall be upgraded as necessary due to unexpected storm events and to ensure that sediment and sediment laden water does not leave the site.
4. The Contractor is responsible for control of sediment transport within project limits. If an installed erosion control system does not adequately contain sediment on site, then the erosion control measures shall be adjusted or supplemented by the Contractor as necessary to ensure that sediment laden water does not leave the site. Additional measures shall be provided as required to ensure that all paved areas are kept clean for the duration of the project. Additional interim measures will include, at a minimum, installation of silt fences in accordance with the details shown on the drawings. These measures shall be installed along all exposed embankments and cut slopes to prevent sediment transport.
5. All existing and newly constructed storm inlets and drains shall be protected until pavement surfaces are completed and/or vegetation is established.
6. Erosion control facilities and sediment fences on active sites shall be inspected by the Contractor at least daily during any period with measurable precipitation. Any required repairs or maintenance shall be completed immediately. The erosion control facilities on inactive sites shall be inspected and maintained by the Contractor a minimum of once a month or within 24 hours following the start of a storm event.
7. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment-laden water into the downstream system. The Contractor shall remove all accumulated sediment from all impacted catch basins and storm pipes prior to acceptance by the Owner.
8. The Contractor is solely responsible for protection of all adjacent property and downstream facilities from erosion and siltation during project construction. Any damage resulting from such erosion and siltation shall be corrected at the sole expense of the Contractor.
9. The Contractor shall provide site watering as necessary to prevent wind erosion of fine-grained soils.
10. Unless otherwise indicated on the drawings, all temporary erosion control facilities, including sediment fences, silt sacks, bio-bags, etc. shall be removed by the Contractor within 30 days after permanent landscaping/vegetation is established.
11. Sediment fences shall be constructed of continuous filter fabric to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap, and both ends securely fastened to a post.
12. Sediment fence shall be installed per drawing details. Sediment fences shall have adequate support to contain all silt and sediment captured.
13. The standard strength filter fabric shall be fastened securely to stitched loops installed on the upslope side of the posts, and 6 inches of the fabric shall be extended into the trench. The fabric shall not extend more than 30 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
14. Bio-filter bags shall be clean 100 percent wood product waste. Bags shall be 18-inch x 18-inch x 30-inch, weigh approximately 45 lbs., and be contained in a bag made of 1/2-inch plastic mesh.
15. Sediment barriers shall be maintained until the up-slope area has been permanently stabilized. At no time shall more than 10-inches of sediment be allowed to accumulate behind sediment fences. No more than 2 inches of sediment shall be allowed to accumulate behind bio-filter bags. Sediment shall be removed prior to reaching the above stated depths. New sediment barriers shall be installed uphill as required to control sediment transport.
16. Stabilized construction entrances shall be installed at the beginning of construction and maintained for the duration of the project. Additional measures may be required to ensure that all paved areas are kept clean for the duration of the project.
17. The Contractor shall verify that all trucks are well sealed when transporting saturated soils from the site. Water drippage from trucks transporting saturated soils must be reduced to less than 1 gallon per hour prior to leaving the site.
18. The entrance shall be maintained in a condition that will prevent tracking or flow of mud onto the public right-of-way or approved access point. The entrance may require periodic top dressing as conditions demand, and repair and/or cleanout of any structures used to trap sediment.
19. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately, and the Contractor shall provide protection of downstream inlets and catch basins to ensure sediment laden water does not enter the storm drain system.
20. Temporary grass cover measures must be fully established by October 15th, or other cover measures (ie. erosion control blankets with anchors, 3-inches minimum of straw mulch, 6 mil HDPE plastic sheet, etc.) shall be in place over all disturbed soil areas until April 30th. To establish an adequate grass stand for controlling erosion by October 15th, it is recommended that seeding and mulching occur by September 1st. Straw mulch, if used, shall not leave any bare ground visible through the straw.
21. Minimum wet weather slope protection. For slopes steeper than 3H:1V but less than 2H:1V, use Tensar/North American Green Type S150 erosion control blanket. For slopes 2H:1V or steeper, use Tensar/North American Green Type SC150 erosion control blanket. Use a minimum of 2-inches straw mulch or Tensar/North American Green Type S150 for slopes flatter than 3H:1V. Slope protection shall be placed on all disturbed areas immediately after completion of each section of construction occtivity, until the erosion control seeding has been established. As an option during temporary or seasonal work stoppages, a 6-mil HDPE plastic sheet may be placed on exposed slopes. The plastic sheet shall be provided with an anchor trench at the top and bottom of the slope, and shall be sandbagged on the slopes as required to prevent damage or displacement by wind.
22. Permanent erosion control vegetation on all embankments and disturbed areas shall be re-established as soon as construction is completed.
23. Soil preparatio. Topsoil should be prepared according to landscape plans, if available, or recommendations of grass seed supplier. It is recommended that slopes be textured before seeding by rack walking (ie. driving a crawling tractor up and down the slopes to leave a pattern of cleat imprints parallel to slope contours) or other method to provide stable areas for seeds to rest.
24. When used, hydromulch shall be applied with grass seed at a rate of 2000 lbs. per acre between April 30 and June 10, or between September 1 and October 1. On slopes steeper than 10 percent, hydroseed and mulch shall be applied with a bonding agent (tackifier). Application rate and methodology to be in accordance with seed supplier recommendations.
25. When used in lieu of hydromulch, dry, loose, weed free straw used as mulch shall be applied at a rate of 4000 lbs. per acre (double the hydromulch application requirement). Anchor straw by working in by hand or with equipment (rolers, cleat trackers, etc.). Mulch shall be spread uniformly immediately following seeding.
26. When conditiors are not favorable to germination and establishment of the grass seed, the Contractor shall irrigate the seaded and mulched areas as required to establish the grass cover.
27. Seeding. Recommended erosion control grass seed mix is as follows. Dwarf grass mix (low height, low maintenance) consisting of dwarf perennial ryegrass (80 % by weight), creeping red fescue (20 % by weight). Application rate shall be 100 lbs. per acre minimum.
28. Grass seed shall be fertilized at a rate of 10 lbs. per 1000 S.F with 16- 16-16 slow release type fertilizer. Development areas within 50 feet of water bodies and wetlands must use a non-phosphorous fertilizer.
29. Prior to starting construction contractor shall acquire the services of a DEQ Certified Erosion and Sediment Control Inspector and shall submit an "Action Plan" to DEQ indentifying their names, contact information, training and experience as required in Schedule A.6.b.i-ii of the 1200-C Permit
30. Contractor shall submit "Notice of Termination" to DEQ to end the 1200-C permit coverage once all soil disturbance activities have been completed and final stabilization of exposed soils has occured.

VERIFY SCALE
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1		REVISIONS	

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 15, 1994 STEVEN A. WEST RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

EROSION CONTROL NOTES & DETAILS

DRAWING
EC-1

JOB NUMBER
2720.7000.0

CITY OF SALEM PUBLIC WORKS DESIGN STANDARDS:

Division 007 Appendix A–EPSC Plan Standard Notes

(a) PRE–CONSTRUCTION

(1). Prior to any land disturbing activities, the boundaries of the clearing and grading limits, vegetated buffers, and any sensitive areas shown on this plan shall be clearly delineated in the field. Unless otherwise approved, no disturbance is permitted beyond the clearing limits. The Contractor must maintain the delineation for the duration of the project. Note: vegetated corridors to be delineated with orange construction fence or approved equal.

(2). BMPs that must be installed prior to land disturbing activities are construction entrance, perimeter sediment control, and inlet protection.

(3). Hold a preconstruction conference to review the EPSCP and with the City's Project Manager and Inspector.

(b) CONSTRUCTION

(1). All sediment is required to stay on site. Sediment amounts greater than 1/2–cubic foot which leave the site must be cleaned up within 24 hours and placed back on the site and stabilized or properly disposed. Vacuuming or dry sweeping must be used to clean up released sediment and it must not be swept or washed into storm sewers, drainage ways, or water bodies. The cause of the sediment release must be found and prevented from causing a recurrence of the discharge within thesame 24 hours. Any in–stream clean up of sediment shall be performed according to the DSL required time frame.

(2). Construction, maintenance, replacement, and upgrading of erosion prevention and sediment control facilities is the sole responsibility of the Contractor until all construction is completed, approved, and permanent erosion control (i.e., vegetation/landscaping) is established on all disturbed areas.

(3). All recommended erosion prevention and sediment control procedures are dependent on construction methods, staging, site conditions, weather, and scheduling. During the construction period, erosion control facilities shall be revised, upgraded, replaced, or added, to comply with SRC and State and Federal regulatory requirements.

(4). The Contractor is solely responsible for protection of all adjacent property and downstream facilities from erosion and siltation during project construction. Any damage resulting from such erosion and siltation shall be corrected at the sole expense of the Contractor.

(5). When saturated soil is present, water–tight trucks must be used to transport saturated soils from the construction site. Soil may be drained on site at a designated location, using appropriate BMPs. Soil must be drained sufficiently to drip less than one gallon per hour prior to leaving the site.

(6). All materials spilled, dropped, or washed into storm drains must be removed immediately, and the Contractor shall provide protection of downstream inlets and catch basins to ensure sediment–laden water does not enter the storm drain system.

(7). All discharge of sediment–laden water must be treated with an appropriate BMP to remove sediment from discharge waters and to comply with SRC and State and Federal Regulatory Permits.

(8). In areas subject to wind erosion, appropriate BMPs must be used which may include the application of fine water spraying, plastic sheeting, mulching, or other approved measures.

(9). The EPSC measures and BMPs shown on this plan are the minimum requirements for anticipated site conditions. During the construction period, these measures shall be upgraded as needed to maintain compliance with all regulations.

(10). The contractor shall provide onsite water or other appropriate BMPs to prevent dust and wind erosion of fine grain soils.

(11). Disturbed areas must be stabilized after 14 days of inactivity, or immediately if rain is forecasted. See Subsection 7A.1(d)–Wet Weather Period.

(12). During the wet weather work period or when rain is forecasted, all active and inactive soil stock piles must be covered with appropriate plastic sheeting. Plastic sheeting must cover the entire stock pile and be sufficiently anchored.

(c) POLLUTANTS, SOLID WASTE AND HAZARDOUS MATERIALS MANAGEMENT

(1). Any use of toxic or other hazardous materials must include proper storage, application, and disposal.

(2). The contractor is solely responsible to properly manage pollutants, hazardous wastes, used oils, contaminated soils, concrete waste, sanitary waste, liquid waste, or other toxic substances discovered or generated during construction to prevent leakage, spills or release of pollutants to the environment and surface waters.

(3). Contractor shall develop a project specific written spill prevention and response procedures that includes employee training on spill prevention and proper disposal procedures; regular maintenance schedule for vehicles andmachinery; and material delivery and storage controls, signage, material use, and use of covered storage areas for waste and supplies. The plan shall comply with SRC and Federal and State requirements, and shall be available on site at all times.

(d) WET WEATHER PERIOD (OCTOBER 15 THROUGH APRIL 30)

(1). Construction activities must avoid or minimize the duration of disturbed areas.

(2). Temporary stabilization of the site including covering of bare soils with approved BMPs, must be installed at the end of the shift before a holiday or weekend, or at the end of each workday if rainfall is forecast in the next 24 hours.

(3). Temporary stabilization or covering of soil stockpiles and protection of stockpiles located away from construction activity must occur at the end of each workday.

(e) MAINTENANCE

(1). Erosion control measures shall be maintained in such a manner as to ensure that erosion is prevented and sediment–laden water does not enter a drainage system, roadway, or violate applicable water quality standards.

(2). Sediment shall not be washed or swept into storm sewers, drainage ways, or water bodies.

(3). Sediment must be removed from behind all sediment control measures when it has reached a height of 1/3 the barrier height, and prior to the control measures removal.

(4). Removal of trapped sediment in a sediment basin or sediment trap or catch basins must occur when the sediment retention capacity has been reduced by 50 percent; is not functioning properly and/or at the completion of project.

(5). Cleaning of all structures, inlet protection BMPs, and sump pumps must be completed regularly and as required to ensure structures and inlets function properly and flow freely.

(6). Construction site exits shall be maintained in a condition that will prevent tracking or flow of mud onto the ROW or approved access point. The entrance may require periodic top dressing as conditions demand, and repair and/or cleanout of any structures used to trap sediment. Wheel washing shall be required to prevent sediment and material tracking on road surfaces if passive BMPs are not effective.

(f) INSPECTION

(1). The EPSCP must be kept onsite at all times. All measures shown on the plan must be installed properly to ensure compliance with SRC and State and Regulatory permits, and that sediment does not enter a surface water system, roadway, or other properties.

(2). Written EPSC inspection logs shall be maintained onsite and available to City inspectors upon request.

(3). All BMPs shall be inspected at least every week. When a rainfall event exceeds 1/2–inch in a 24–hour period, daily inspection of the erosion controls, sediment controls, and discharge outfalls must be conducted and documented. Inspections shall be done by a representative of the permit registrant who is knowledgeable and experienced in the principles, practices, installation, and maintenance of erosion and sediment controls.

(g) INACTIVE CONSTRUCTION PERIODS AND POST–CONSTRUCTION

(1). Should work cease in any area for 14 days, the inactive area must be stabilized with appropriate soil stabilization BMPs. If all construction activity ceases the entire site must be temporarily stabilized using vegetation, heavy mulch layer, temporary seeding, or other method.

(2). All temporary erosion prevention and sediment control facilities shall be removed by the contractor within 30 days after permanent landscaping/vegetation is established and the threat of erosion and sediment transport has been mitigated.

(3). Temporary grass cover measures must be fully established by October 15 or other cover measures (i.e., erosion control blankets with anchors, one–inch of straw mulch, six mil HDPE plastic sheet, etc.) shall be in place over all disturbed soil areas until April 30. To establish an adequate grass stand for controlling erosion by October 15, it is recommended that seeding and mulching occur by September 1.

(4). Permanent erosion control vegetation on all embankments and disturbed areas shall be re–established as soon as construction is completed.

(h) SPECIFICATIONS

(1). Soil preparation. Topsoil should be prepared according to the landscape plans, if available, or recommendations of the grass seed supplier. Slopes shall be textured before seeding by rack walking (i.e., driving a crawling tractor up and down the slopes to leave a pattern of cleat imprints parallel to slope contours) or other method to provide stable areas for seeds to rest.

(2). Seeding. Erosion control grass seed mix shall be as follows: Dwarf grass mix (low height, low maintenance) consisting of dwarf perennial ryegrass (80 percent by weight), creeping red fescue (20 percent by weight). Application rate shall be 100 pounds per acre minimum.

(3). Grass seed shall be fertilized at a rate of ten pounds per 1,000 square feet with 16–16–16 slow release type fertilizer. Disturbed areas within 50 feet of water bodies and wetlands must use a non–phosphorous fertilizer.

(4). The application rate of fertilizers used to reestablish vegetation shall follow manufacturer's recommendations. Nutrient releases from fertilizers to surface waters shall be minimized. Time release fertilizers shall be used. Care shall be made in the application of fertilizers within any waterway riparian zone to prevent leaching into the waterway.

(5). When used, hydromulch shall be applied with grass seed at a rate of 2,000 pounds per acre between April 30 and June 10, or between September 1 and October 1. On slopes steeper than ten percent, hydroseed and mulch shall be applied with a bonding agent (tackifier). Application rate and methodology shall be in accordance with seed supplier recommendations.

(6). When used in lieu of hydromulch, dry, loose, weed–free straw used as mulch shall be applied at a rate of 4,000 pounds per acre (double the hydromulch application requirement). Anchor straw by working in by hand or with equipment (rollers, cleat trackers, etc.). Mulch shall be spread uniformly immediately following seeding.

(7). When conditions are not favorable to germination and establishment of the grass seed, the Contractor shall irrigate the seeded and mulched areas as required to establish the grass cover.

(8). Sediment fences shall be constructed of continuous filter fabric to avoid use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum six–inch overlap, and both ends securely fastened to a post.

(9). The standard strength filter fabric shall be fastened securely to stitched loops installed on the upslope side of the posts, and six inches of the fabric shall be extended into the trench. The fabric shall not extend more than 30 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.

(10). Bio–filter bags shall be clean 100 percent wood product waste. Bags shall be 18–inch x 18–inch x 30–inch, weigh approximately 45 pounds, and be contained in a bag made of 1/2–inch plastic mesh.

(11). Minimum wet weather slope protection. For 3H:1V or steeper slopes use Bon Terra Type C2 or North American Green Type C125 erosion control blankets. Use a minimum of two inches straw mulch or North American Green Type S150 for slopes flatter than 3H:1V and greater than 6H:1V. Slopes flatter than 6H:1V use one inch straw mulch, hydroseed with hydromulch and tackifier. Slope protection shall be placed on all disturbed areas immediately after completion of each section of construction activity, until the erosion control seeding has been established. As an option during temporary or seasonal work stoppages, a six–mil HDPE plastic sheet may be placed on exposed slopes. The plastic sheet shall be provided with an anchor trench at the top and bottom of the slope, and shall be sandbagged on the slopes as required to prevent damage or displacement by wind.

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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1980
STEVEN A. WEST
11847
RENEWS: 6/30/2023

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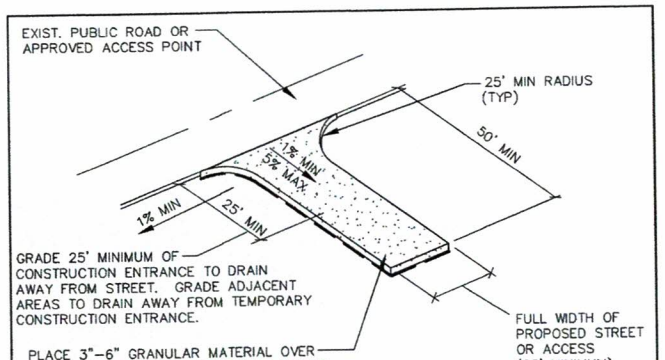
WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

EROSION CONTROL NOTES & DETAILS

DRAWING
EC–2

JOB NUMBER
2720.7000.0



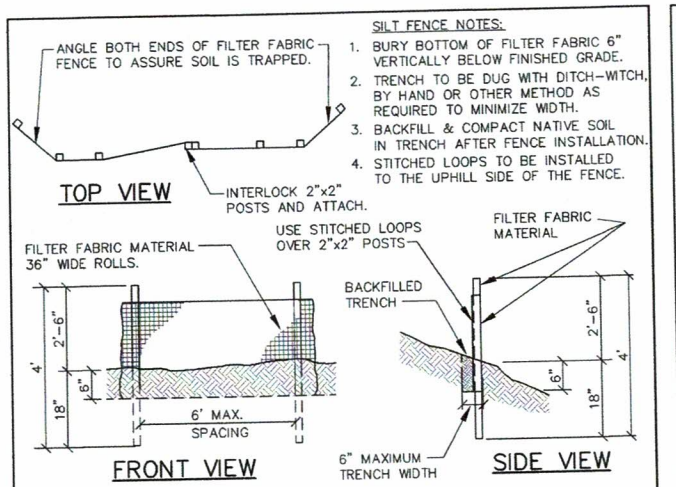
CONSTRUCTION NOTES:

1. THE AREA OF THE CONSTRUCTION ENTRANCE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROOTS, AND OTHER NON-COMPACTABLE MATERIAL.
2. SUBGRADE SHALL BE COMPACTED AND PROOFROLLED PRIOR TO PLACEMENT OF GRANULAR MATERIAL. FAILURE TO PASS PROOFROLL WILL REQUIRE USE OF WET WEATHER SECTION.
3. FAILURE OR PUMPING OF THE DRY WEATHER SECTION WILL REQUIRE REMOVAL OF THE GRANULAR MATERIAL AND INSTALLATION OF THE WET WEATHER SECTION.

MAINTENANCE NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 3"-6" INCH STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN-OUT OF STRUCTURES USED TO TRAP SEDIMENT.
2. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
3. ALL TRUCKS TRANSPORTING SATURATED SOILS SHALL BE WELL SEALED. WATER DRIPPAGE FROM TRUCKS MUST BE REDUCED TO 1 GALLON PER HOUR PRIOR TO LEAVING THE SITE.

LAST REVISION DATE: MAY 2013	JO #: STANDARD
TEMPORARY CONSTRUCTION ENTRANCE (NTS)	
WESTECH ENG.	DETAIL NO. 6100



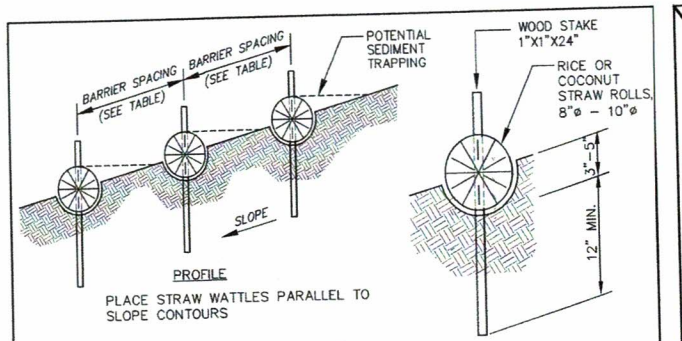
SILT FENCE NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. TRENCH TO BE DUG WITH DITCH-WITCH, BY HAND OR OTHER METHOD AS REQUIRED TO MINIMIZE WIDTH.
3. BACKFILL & COMPACT NATIVE SOIL IN TRENCH AFTER FENCE INSTALLATION.
4. STITCHED LOOPS TO BE INSTALLED TO THE UPHILL SIDE OF THE FENCE.

MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND SEDIMENT FENCES OR BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

LAST REVISION DATE: APRIL 2014	JO #: STANDARD
SEDIMENT BARRIERS (NTS)	
WESTECH ENG.	DETAIL NO. 6110



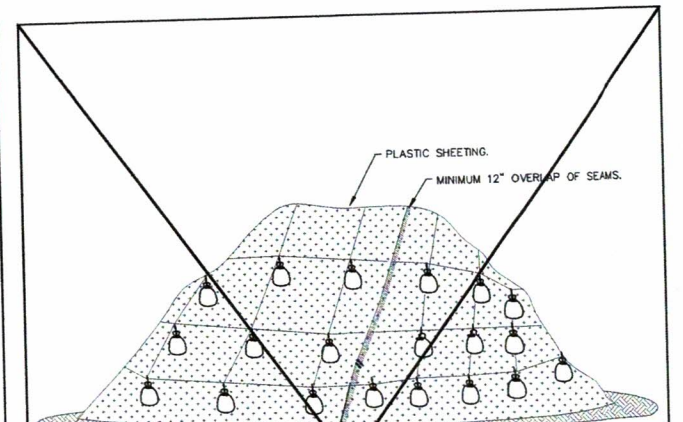
BARRIER SPACING FOR GENERAL APPLICATION

INSTALL PARALLEL TO CONTOURS AS FOLLOWS	
SLOPE RATIO	MAXIMUM SPACING ON SLOPE BETWEEN WATTLES
10.0% OR FLATTER	50' O.C.
10.1% TO 20.0%	25' O.C.
20.1% TO 30.0%	10' O.C.
30.1% OR STEEPER	5' O.C.

NOTES:

1. ALL MATERIAL SHALL CONFORM TO OSHD STANDARD SPECIFICATIONS, 1996 EDITION.
2. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
3. AT NO TIME SHALL SEDIMENT BE ALLOWED TO ACCUMULATE ABOVE THE TOP OF THE STRAW WATTLE.
4. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

LAST REVISION DATE: DEC. 2000	JO #: STANDARD
STRAW WATTLE SEDIMENT BARRIER (NTS)	
WESTECH ENG.	DETAIL NO. 6120

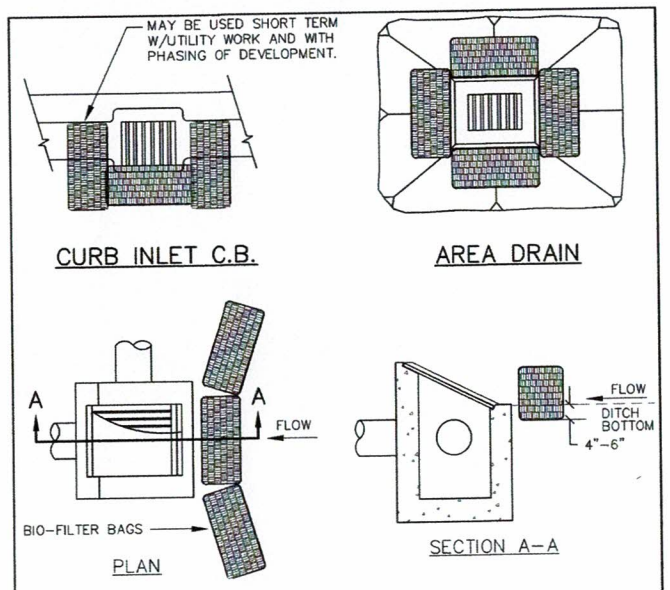


STOCKPILE DETAIL

NOTES:

1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. SEDIMENT 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.
4. PLASTIC SHEETING TO EXTEND A MINIMUM OF 12" PAST THE BOTTOM OF THE PILE ONTO SURROUNDING GRADE ON ALL SIDES.

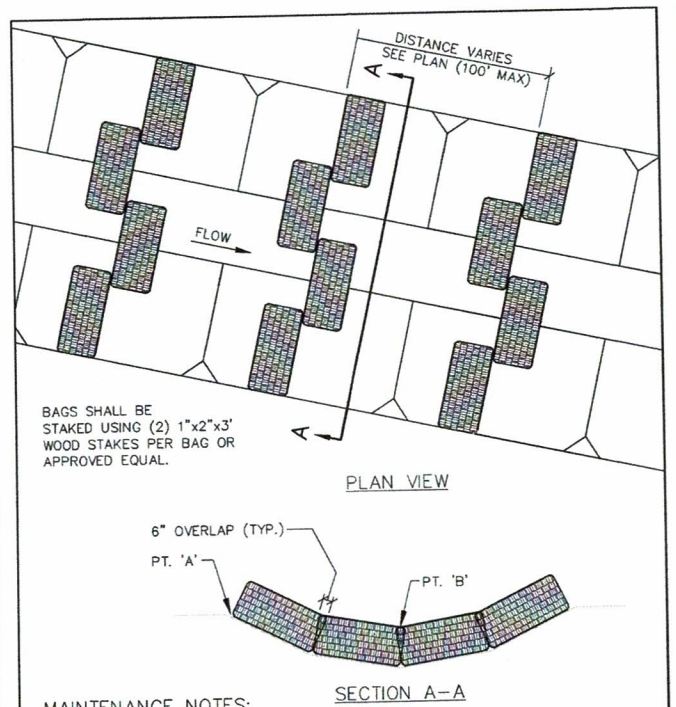
LAST REVISION DATE: JAN 2019	JO #: STANDARD
STOCKPILE DETAIL (NTS)	
WESTECH ENG.	DETAIL NO. 6170



MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND SEDIMENT FENCES OR BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.

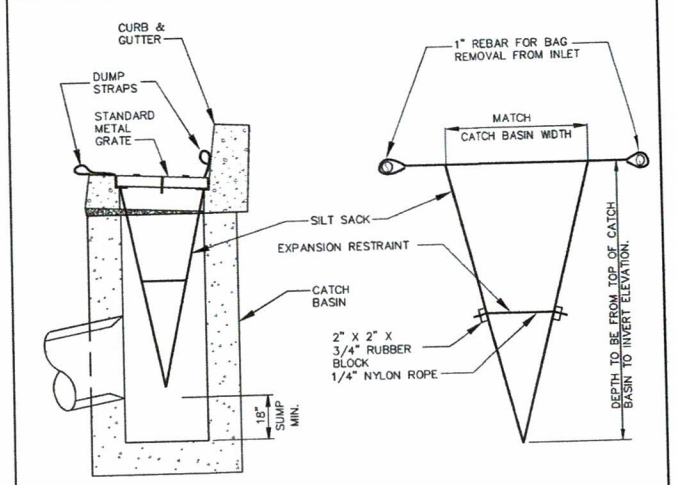
LAST REVISION DATE: APRIL 2014	JO #: STANDARD
INLET SEDIMENT CONTROL (NTS)	
WESTECH ENG.	DETAIL NO. 6130



MAINTENANCE NOTES:

1. SEDIMENT BARRIERS SHALL BE MAINTAINED UNTIL UP-SLOPE AREA IS PERMANENTLY STABILIZED.
2. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE BEHIND BIOFILTER BAGS.
3. NEW SEDIMENT BARRIERS SHALL BE INSTALLED UPHILL AS REQUIRED TO CONTROL SEDIMENT TRANSPORT.
4. PT. 'A' SHALL BE 6" MIN. HIGHER THAN PT. 'B'.

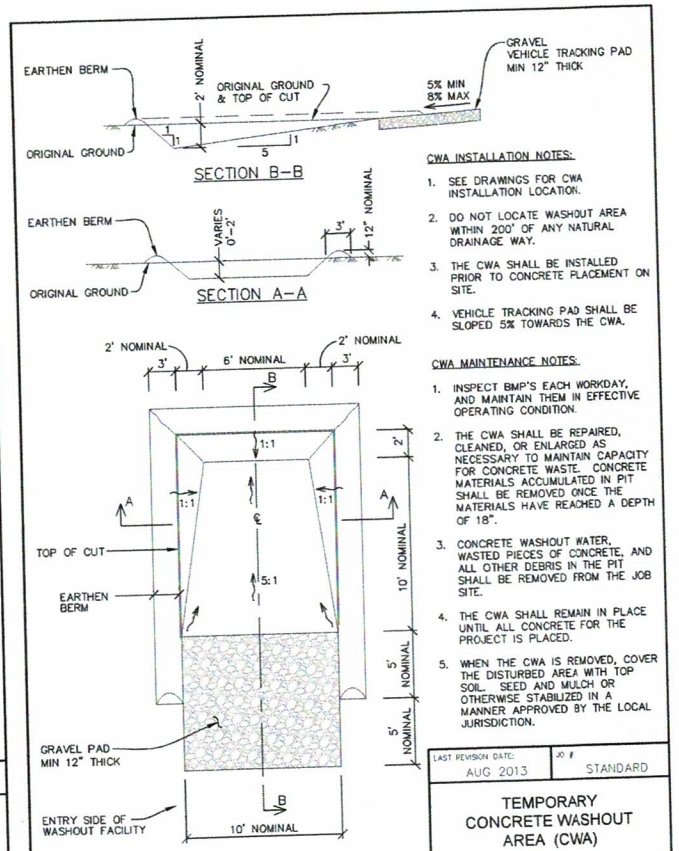
LAST REVISION DATE: APRIL 2014	JO #: STANDARD
DITCH AND SWALE EROSION PROTECTION (NTS)	
WESTECH ENG.	DETAIL NO. 6140



NOTES:

1. EMPTY SILT SACK AS NECESSARY.
2. SILTSACK SEDIMENT CONTROL DEVICE AS MANUFACTURED BY ACF ENVIRONMENTAL AND SUPPLIED BY ACF WEST (503) 771-5115 OR APPROVED EQUAL.

LAST REVISION DATE: OCT 2002	JO #: STANDARD
SILTSACK INLET DETAIL (NTS)	
WESTECH ENG.	DETAIL NO. 6150



CWA INSTALLATION NOTES:

1. SEE DRAWINGS FOR CWA INSTALLATION LOCATION.
2. DO NOT LOCATE WASHOUT AREA WITHIN 200' OF ANY NATURAL DRAINAGE WAY.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. VEHICLE TRACKING PAD SHALL BE SLOPED 5% TOWARDS THE CWA.

CWA MAINTENANCE NOTES:

1. INSPECT BMP'S EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION.
2. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 18".
3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE PIT SHALL BE REMOVED FROM THE JOB SITE.
4. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
5. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

LAST REVISION DATE: AUG 2013	JO #: STANDARD
TEMPORARY CONCRETE WASHOUT AREA (CWA) (NTS)	
WESTECH ENG.	DETAIL NO. WE6160

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VERIFY SCALE
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DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER OREGON JULY 15, 1994 STEVEN A. WARD
RENEWS: 6/30/2022

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CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

EROSION CONTROL NOTES & DETAILS

DRAWING
EC-3

JOB NUMBER
2720.7000.0

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JOB NUMBER 2720.7000.0

DRAWING EC-4

POST EROSION CONTROL PLAN

WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1983
STEVEN A. WARD
11943
RENEWS: 6/30/2022

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DSN.	SAW
DRN.	AR
CKD.	SAW
DATE:	FEB 2021

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

NOTES:

1. AFTER REMOVAL OF ALL TREES, STUMPS, & DEBRIS FINE GRADE ALL LOTS TO FORM A SMOOTH, FREE DRAINING, MOBILE SURFACE.

2. SEE DWG EC-5 FOR TREE REMOVAL/PROTECTION SUMMARY

X REMOVE TREE

EROSION CONTROL LEGEND

- SILT FENCE SEE DTL
- TREE PROTECT FENCE PER COS DTL 820, 821, 822
- SILT SACK INLET PROTECTION USE BIO BAGS ON CURB INLET CATCH BASINS. USE SILT SACKS ON STANDARD CATCH BASINS.
- (P) PROTECT
- (R) REMOVE
- (S) SAWCUT
- SURVEY MONUMENT OF RECORD – SEE NOTE 22 ON DWG G-1
- REPLACEMENT MONUMENT TO BE SET AFTER COMPLETION OF STREET IMPS

0 15 30 60 (feet)

NOTE:
VERIFY EXACT HP GAS MAIN LOCATION PRIOR TO ANY CONSTRUCTION. COORDINATE LOCATION W/ NW NATURAL.

OLD STRONG RD SE

EXIST 50' ESMT TO COS

CRUSHED CONCRETE/GRAVEL

NO STOCKPILING ALLOWED

CONC.

ASPHALT

CRUSHED CONCRETE/GRAVEL

CONSTRUCTION ENTRANCE

PCC WASHOUT

250.91 PVC 4" VERTICAL 3'

251.23 PVC 2" VERTICAL 2'

248.86 PVC 2" VERTICAL 3'

STRONG RD

SN THE GROVE

REED RD (MR 25)

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY
0 1"
DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1994
STEVEN A. WEBER
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
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WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

EXISTING CONDITIONS, EROSION CONTROL, & DEMOLITION PLAN

DRAWING
EC-5

JOB NUMBER
2720.7000.0

7/20/2021 1:28:19 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\EC-5 Existing Conditions, EC, Demo.dwg, (EC-4 tab)

TREE TABLE

#	SPECIES	DBH	DRIP
1	FIR	28"	22'
2	FIR	33"	25'
3	FIR	31"	23'
4	FIR	31"	22'
5	FIR	24"	19'
6	FIR	23"	20'
7	FIR	19"	18'
8	FIR	23"	27'
9	FIR	46"	18'
~~10~~	STUMP		
~~11~~	STUMP		
~~12~~	PINE	25"	17'
~~13~~	PINE	34"	18'
~~14~~	PINE	41"	23'
15	CEDAR	64"	19'
~~16~~	DECD	46"	18'
~~17~~	DECD	12"	10'
~~18~~	DECD	30"	17'
19	SEQUO	90"	27'
~~20~~	SILVER BIRCH	17"	12'
~~21~~	SILVER BIRCH	17"	12'
~~22~~	SILVER BIRCH	17"	12'
23	SEQUO	66"	22'
~~24~~	ENGLISH WALNUT	21"	20'
~~25~~	ENGLISH WALNUT	23"	21'
~~26~~	BLACK WALNUT	9"	5'
~~27~~	BLACK WALNUT	10"	15'
~~28~~	CEDAR	35"	20'
~~29~~	CEDAR	24"	19'
30	OAK	38"	33'
~~31~~	SEQUO	81"	22'
~~32~~	FIR	53"	19'
~~33~~	CEDAR	56"	15'

TREES/STUMPS REMOVED=20=60.6%
TREES SAVED=13=39.4%

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING 1"
0
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY

DSN.	SAW
DRN.	AR
CKD.	SAW
DATE:	FEB 2021

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 16, 1993
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

TREE CONSERVATION PLAN

DRAWING
EC-6

JOB NUMBER
2720.7000.0

LOT 8
5163 SF

LOT 7
4585 SF

LOT 6
3782 SF

LOT 5
3519 SF

LOT 4
3364 SF

LOT 3
3360 SF

LOT 2
3398 SF

LOT 1
3930 SF

LOT 9
2681 SF

LOT 10
2692 SF

LOT 11
2591 SF

LOT 12
2590 SF

LOT 13
2590 SF

LOT 14
2640 SF

LOT 15
2597 SF

LOT 16
2879 SF

LOT 27
3715 SF

LOT 26
3326 SF

LOT 25
3294 SF

LOT 24
3319 SF

LOT 23
3346 SF

LOT 22
2966 SF

LOT 28
5235 SF

LOT 29
5370 SF

LOT 21
4534 SF

LOT 20
3378 SF

LOT 17
4078 SF

LOT 18
3294 SF

LOT 19
4293 SF

HOA1
HOA2
HOA3
HOA4
HOA5

ST-3
ST-4
ST-5
ST-6

STREET CROSS SLOPE FLOW DIRECTION

FUTURE PARKING LOT & WALK BY OTHERS

STRONG RD

REED RD (PR. 25)

OLD STRONG

0 15 30 60
(feet)

NO.	DATE	DESCRIPTION	BY
		REVISIONS	
1			

VERIFY SCALE
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0 1"
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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 2005
STEVEN A. WEHRLI
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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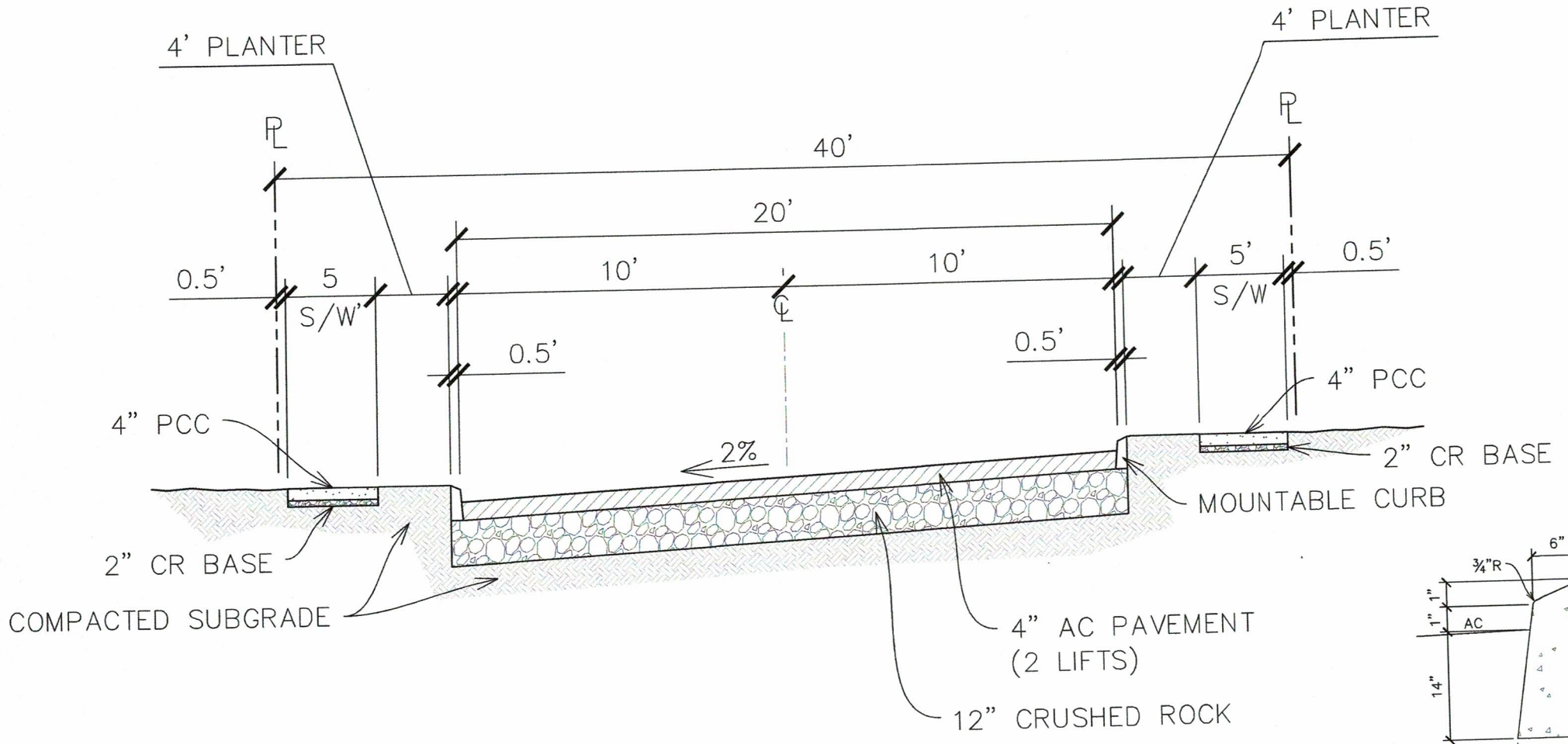
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

OVERALL STREET PLAN

DRAWING
ST-1

JOB NUMBER
2720.7000.0

7/20/2021 1:28:37 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\ST-1 Overall Street Plan.dwg, (Layout1 tab)



TYPICAL STREET SECTION

N.T.S.

MOUNTABLE CURB

N.T.S.

NOTES:

1. STREETS CLASSIFIED AS PRIVATE STREETS WITH CURBS IN ACCORDANCE WITH THE APPROVED AMENDED REFINEMENT PLAN.
2. NO PARALLEL STREET PARKING ALLOWED.
3. STREET MAINTAINED BY HOA.

DESIGN EXCEPTION REQUESTED FOR PRIVATE STREETS:

1. VERTICAL CURVE K VALUES.
2. HORIZONTAL CURVE RADIUS AT STRONG HEIGHTS 90° CORNER.
3. DRIVEWAY APRON VS CURB RETURN AT STRONG ROAD.
4. MOUNTABLE CURB FOR PCC CURBS.
5. 2% CROSS SLOPE IN LIEU OF A NORMAL CROWNED STREET.

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

REGISTERED PROFESSIONAL ENGINEER
11849
OREGON
JULY 15, 1977
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

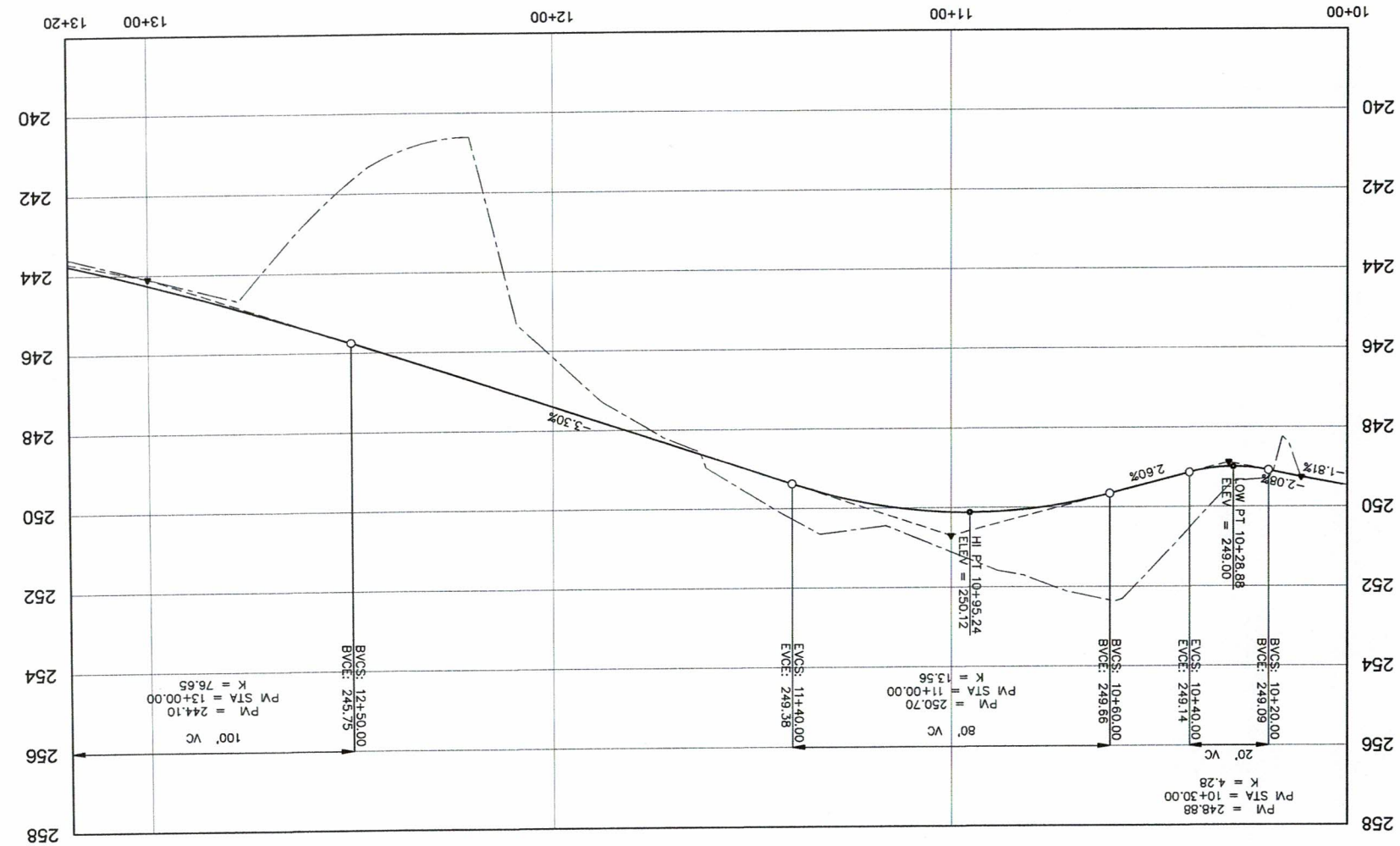
TYPICAL STREET SECTION

DRAWING
ST-2

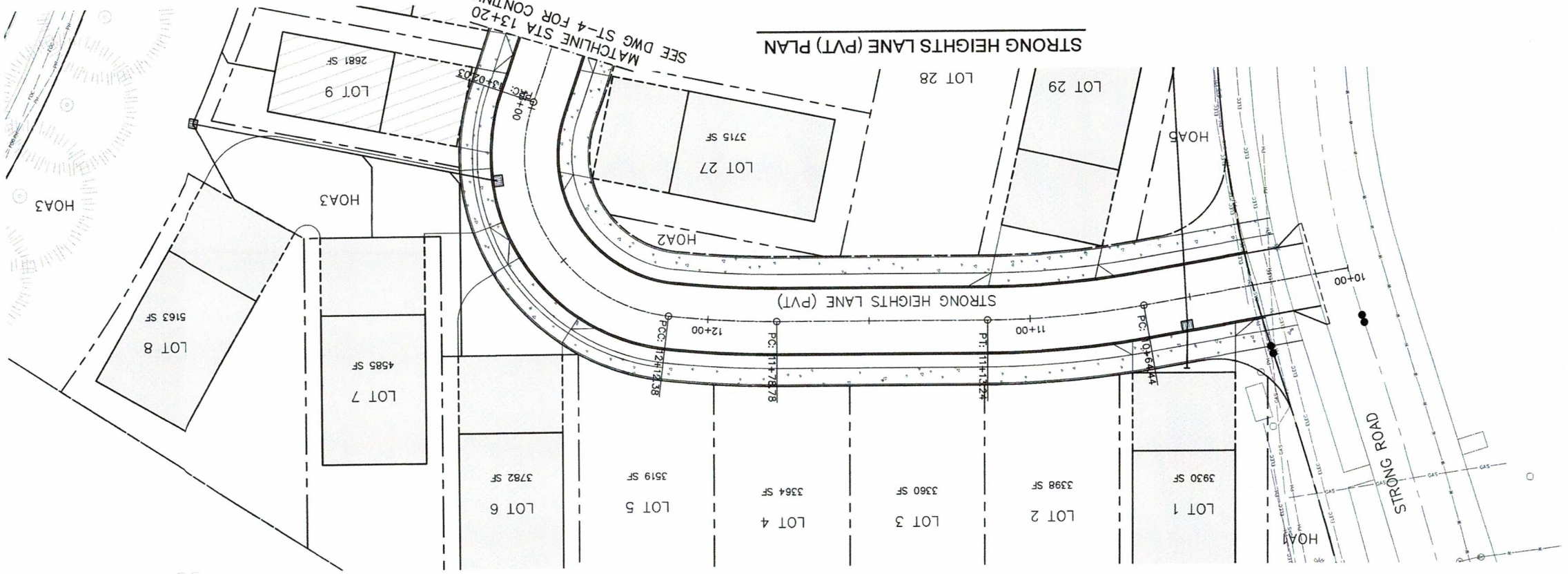
JOB NUMBER
2720.7000.0

STRONG HEIGHTS LANE PROFILE

1" = 20' H, 1" = 2' V



STRONG HEIGHTS LANE (PVT) PLAN



WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

STRONG HEIGHTS LANE (PVT) PLAN–PROFILE STA 10+00 to STA 13+20

DRAWING ST-3

JOB NUMBER 2720.7000.0

WESTECH ENGINEERING, INC.
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E-mail: westech@westech-eng.com

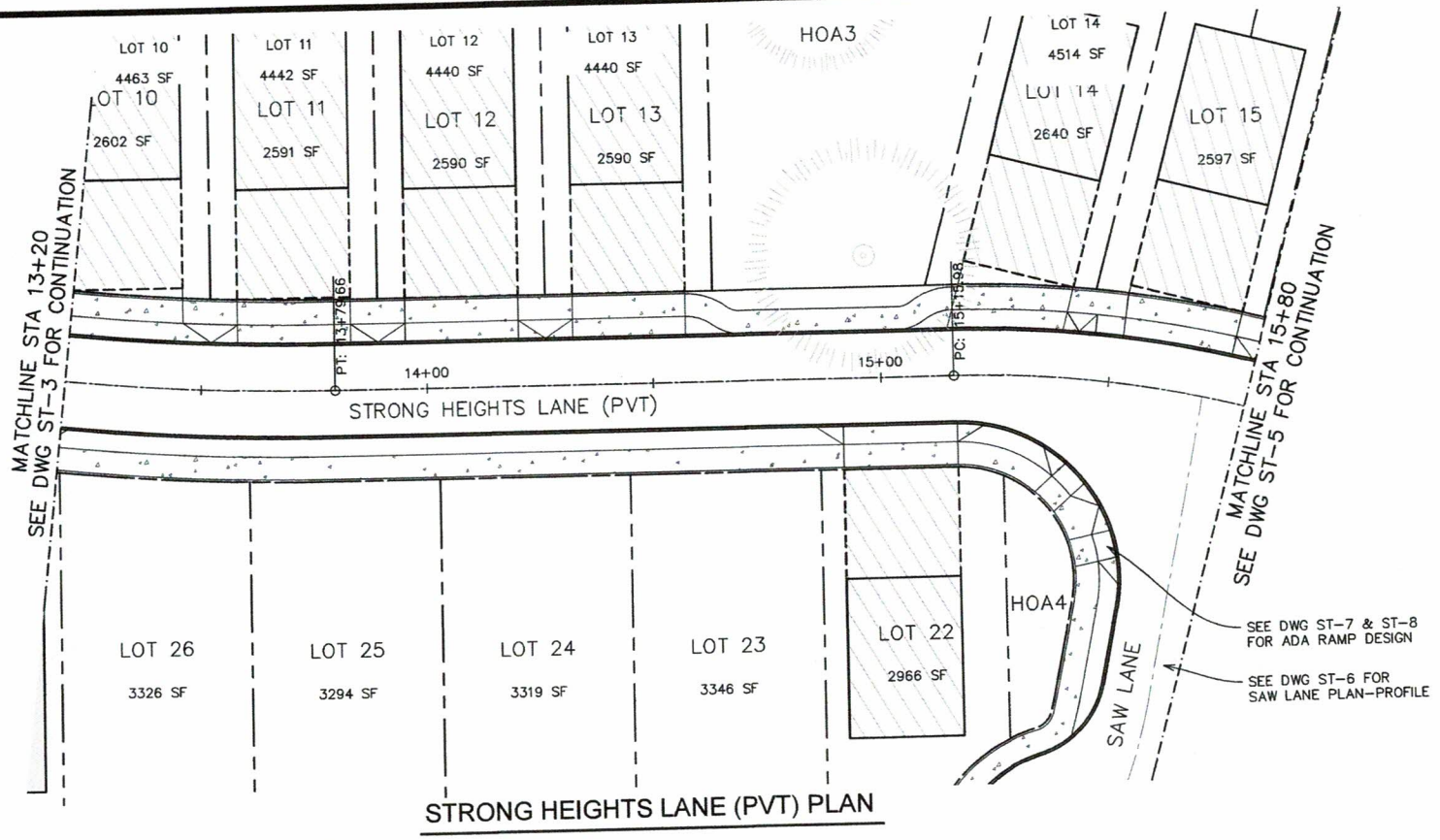
REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 16, 1982
STEVEN A. WARD
RENEWS: 6/30/2022

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
1"

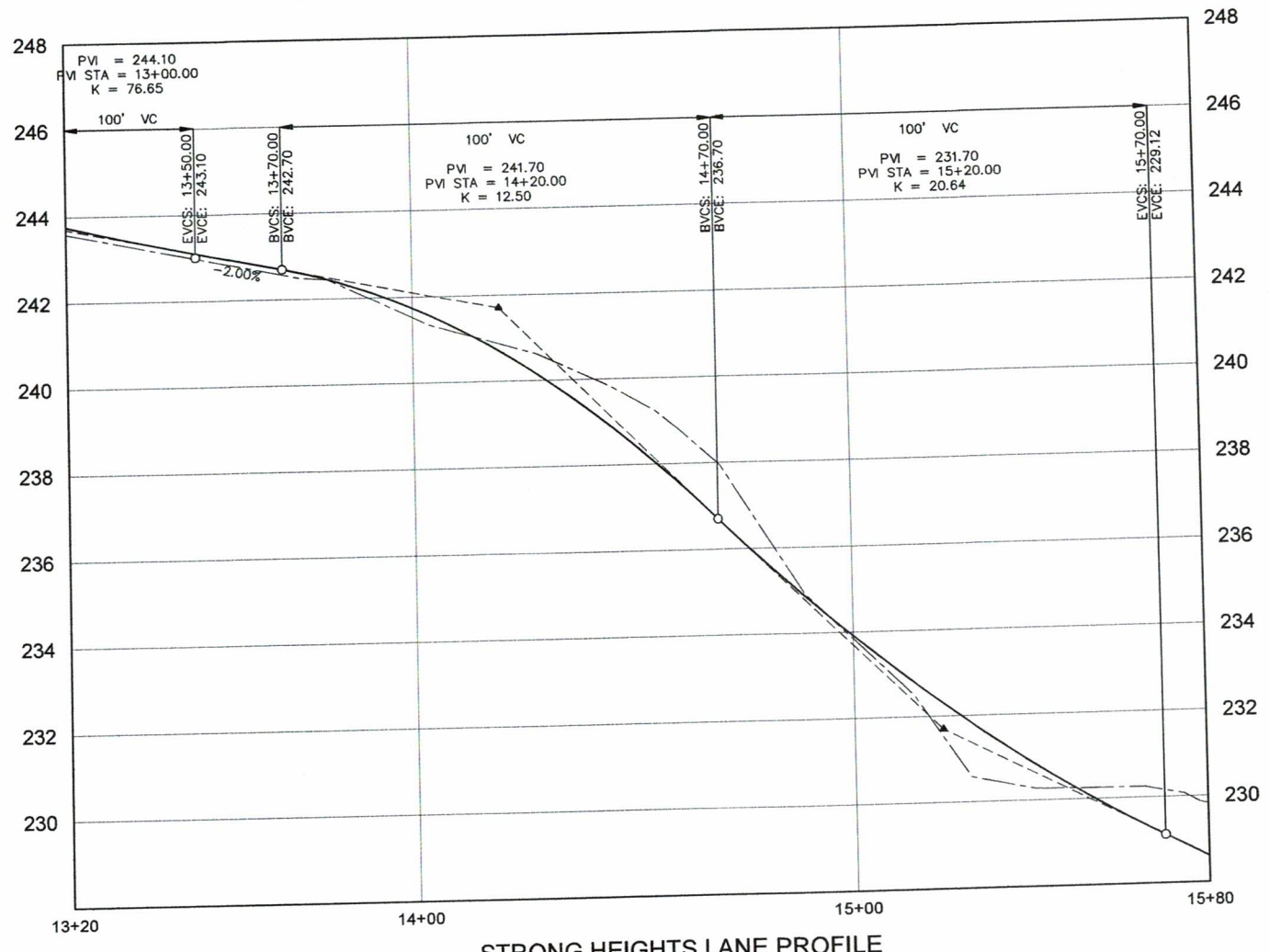
DSN: SAW
DRN: AR
CKD: SAW
DATE: FEB 2021

NO.	DATE	DESCRIPTION	BY
1			

REVISIONS



STRONG HEIGHTS LANE (PVT) PLAN



STRONG HEIGHTS LANE PROFILE

1" = 20' H, 1" = 2' V

0 10 20 40
(feet)

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

NO.	DATE	DESCRIPTION
1		REVISIONS

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1988
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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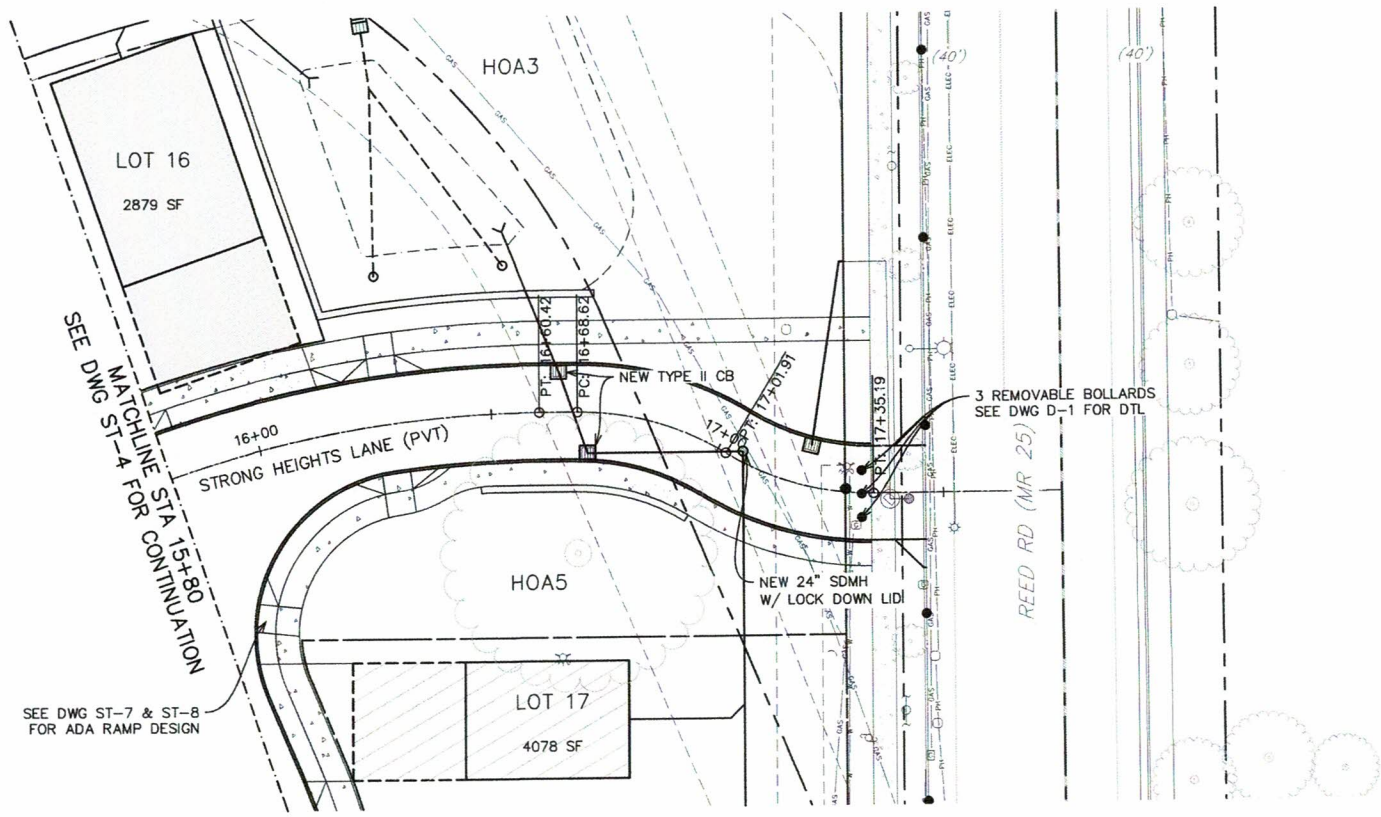
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

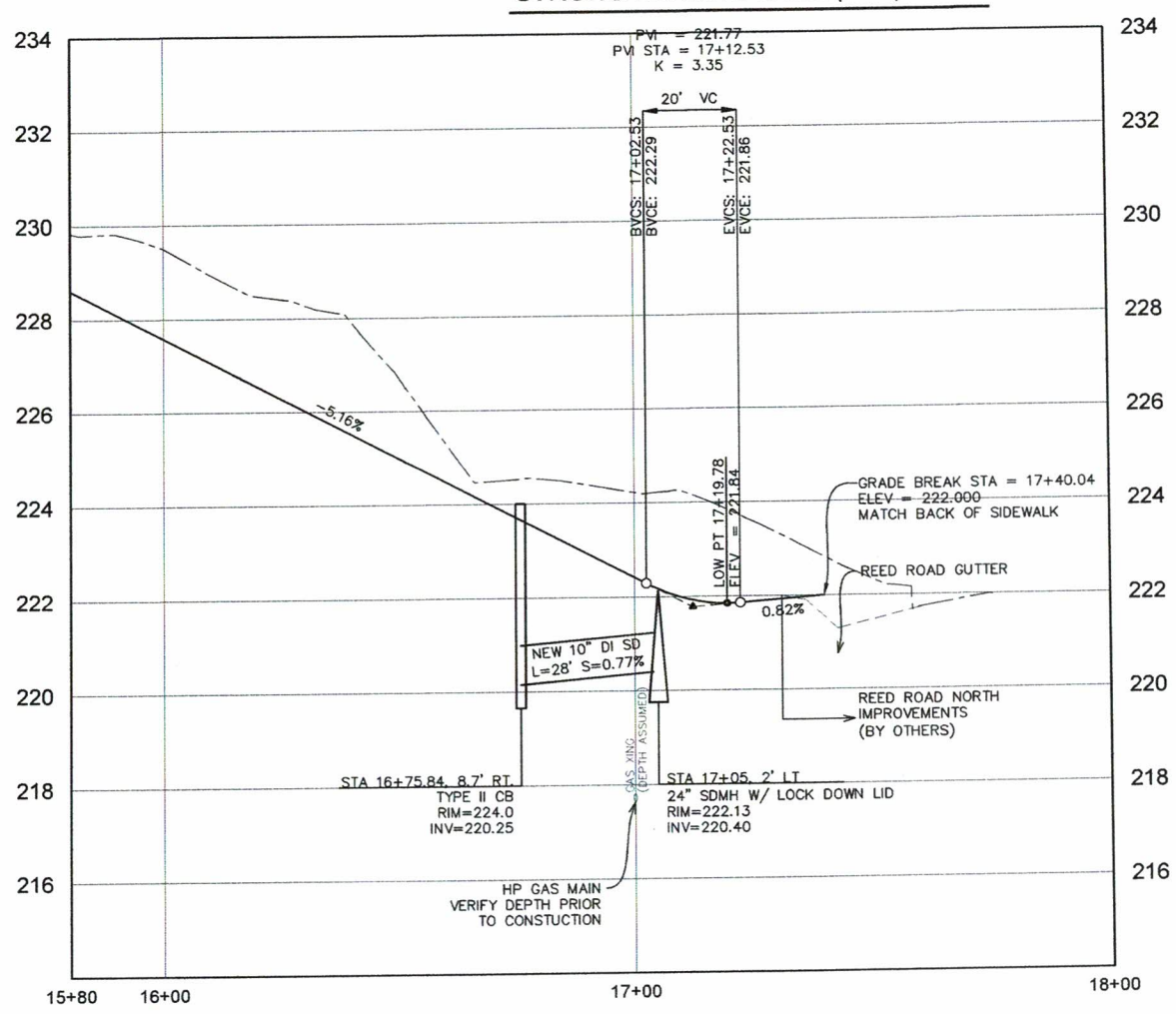
STRONG HEIGHTS LANE (PVT) PLAN–PROFILE STA 13+20 to STA 15+80

DRAWING
ST–4

JOB NUMBER
2720.7000.0



STRONG HEIGHTS LANE (PVT) PLAN



STRONG HEIGHTS LANE PROFILE

1" = 20' H, 1" = 2' V

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
0 1"
DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 2005
STEVEN A. WAY
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
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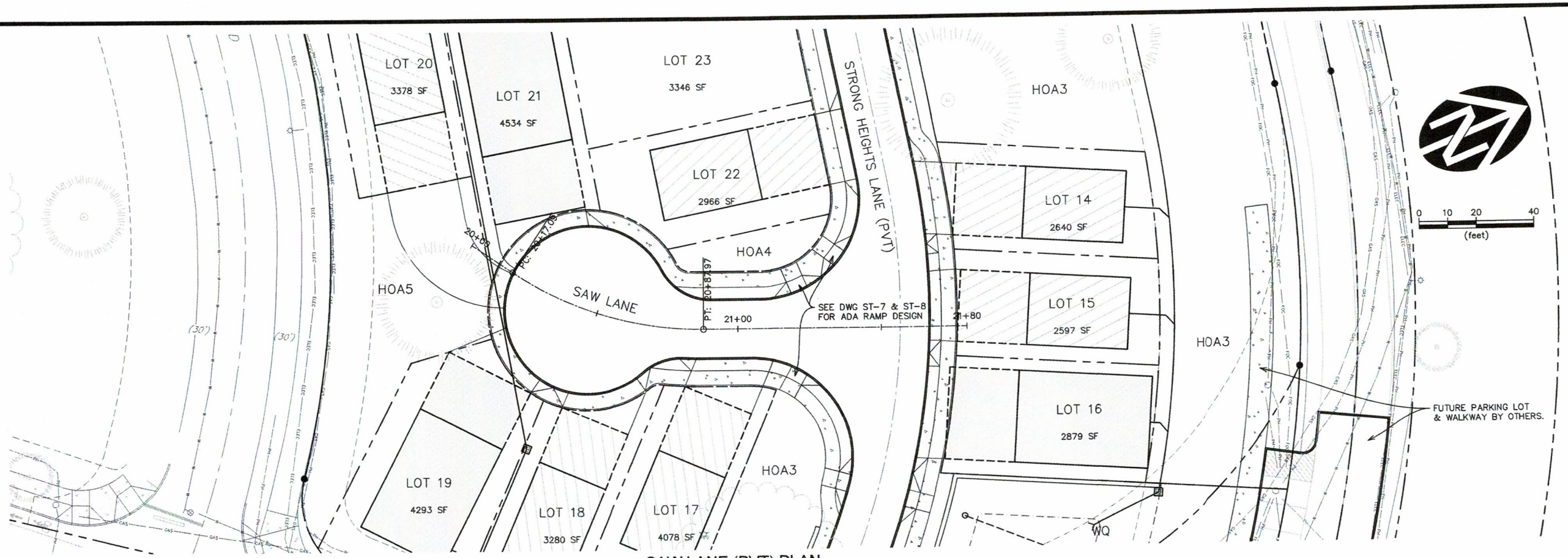
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

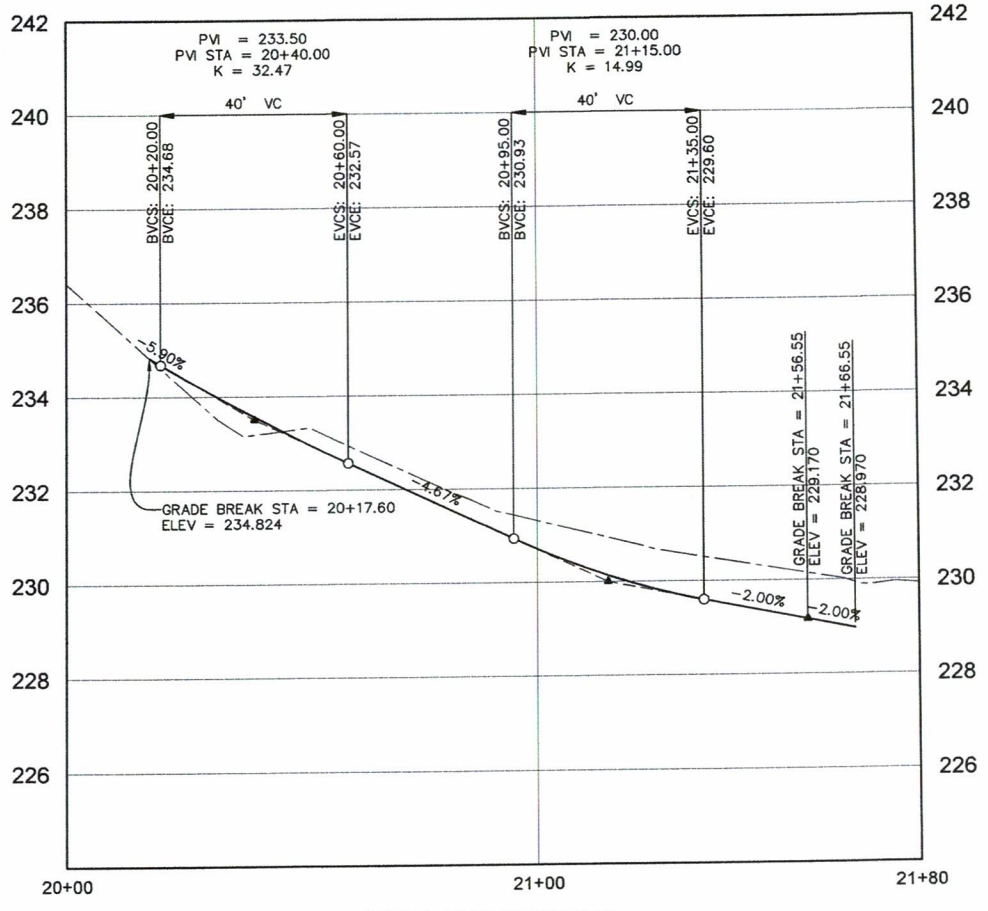
STRONG HEIGHTS LANE (PVT) PLAN–PROFILE STA 16+20 to END

DRAWING
ST–5

JOB NUMBER
2720.7000.0

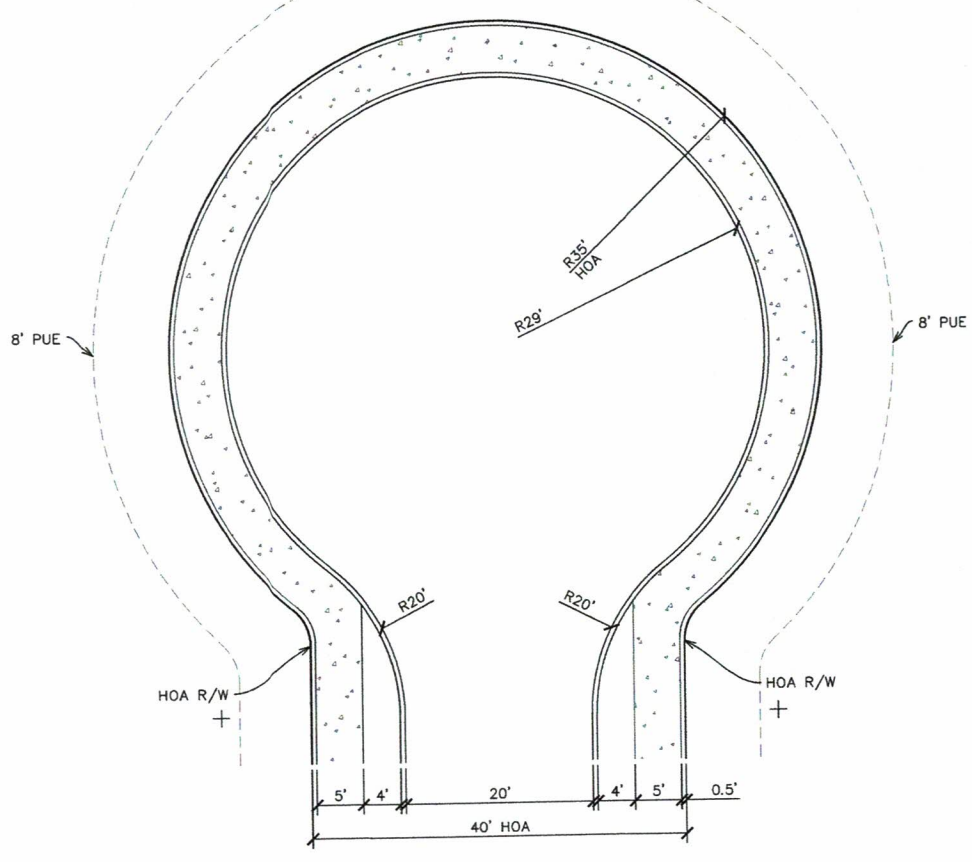


SAW LANE (PVT) PLAN



SAW LANE PROFILE

1" = 20' H, 1" = 2' V



TYPICAL MODIFIED CUL-DE-SAC

NTS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 2005
STEVEN A. WAY
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

SAW LANE (PVT) PLAN–PROFILE

DRAWING
ST–6

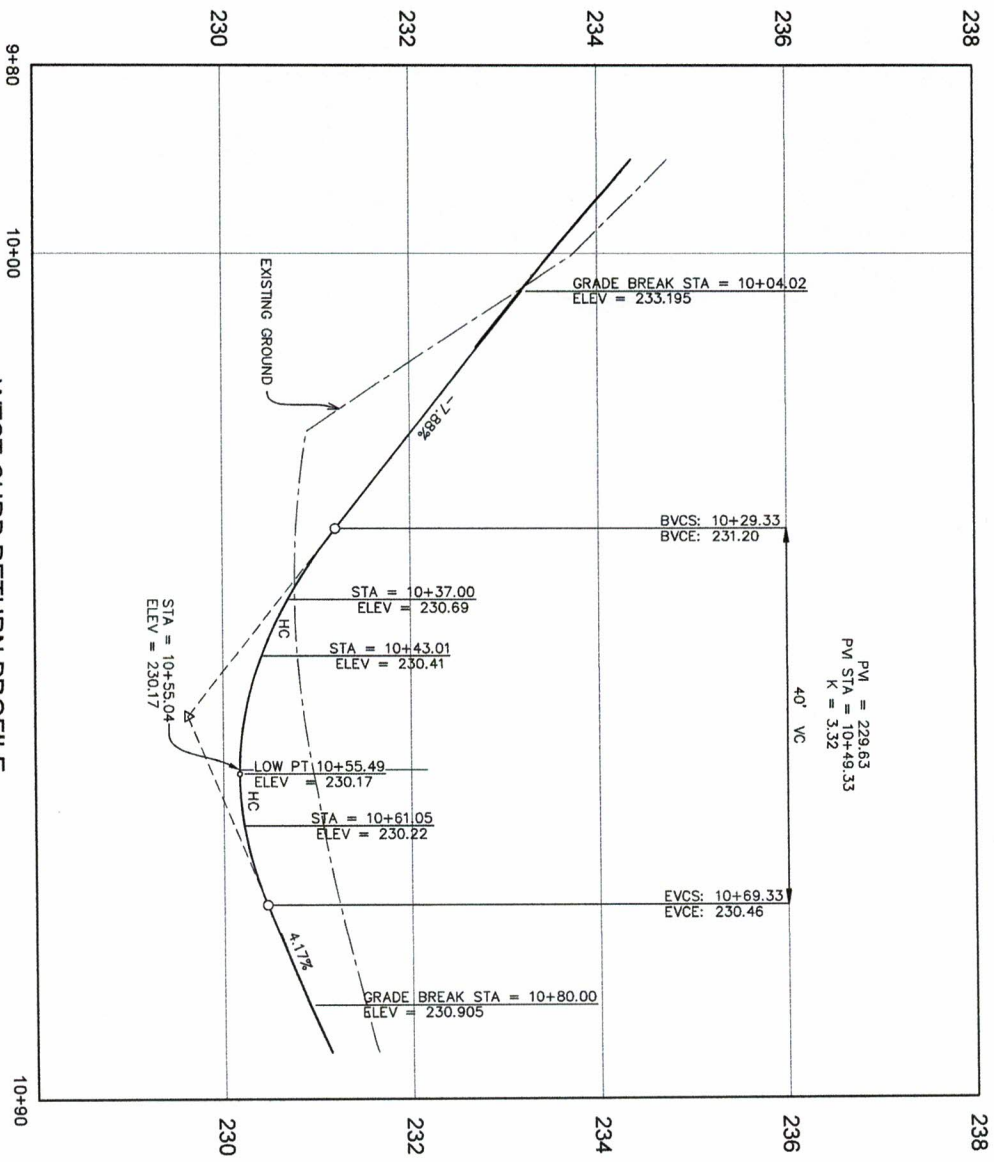
JOB NUMBER
2720.7000.0

7/20/2021 1:29:09 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\ST-3 Street P-P dwg, (ST-6 tab)

7/20/2021 1:29:23 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\ST-7 Curb Retruns.dwg, (ST-7 tab)

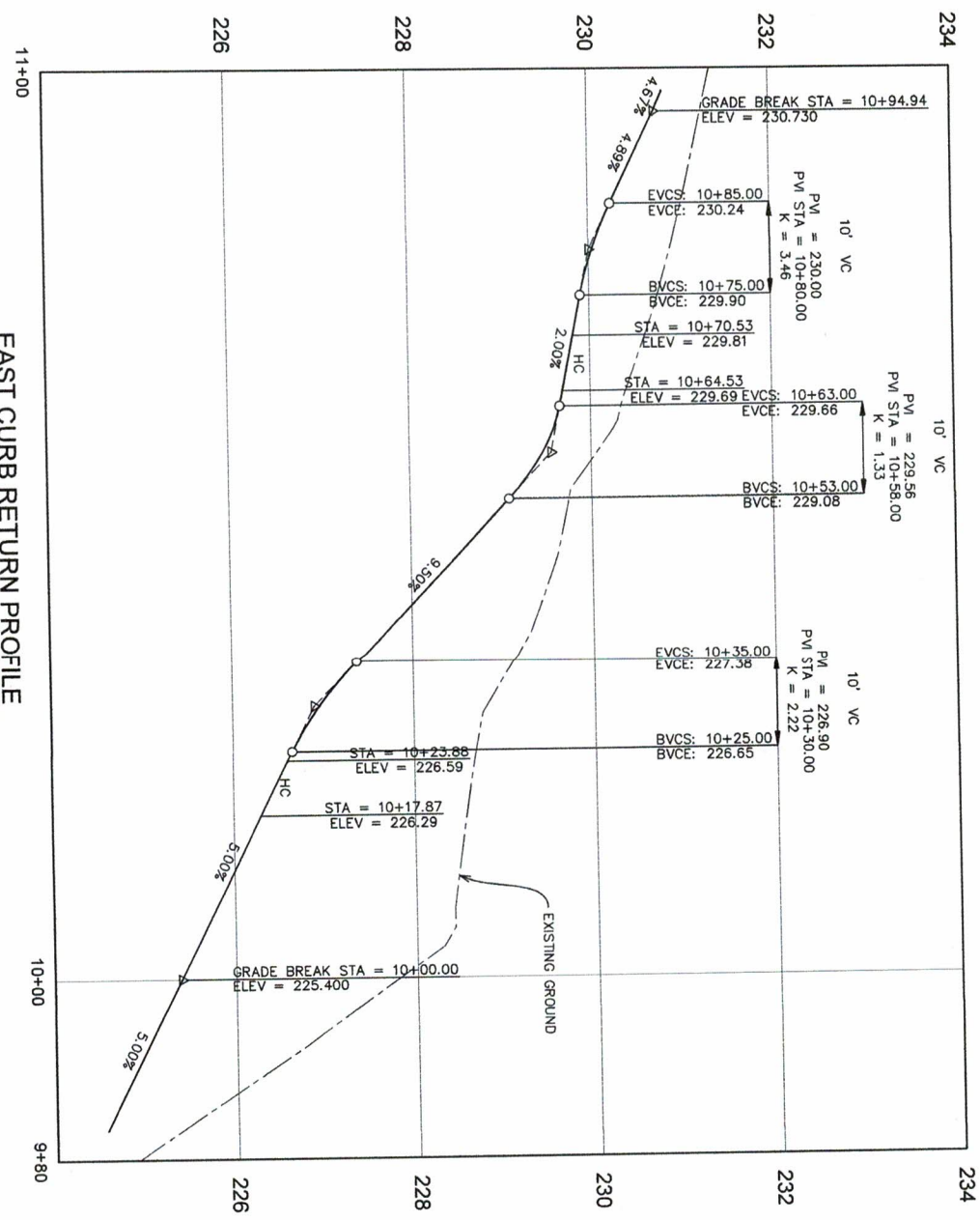
WEST CURB RETURN PROFILE

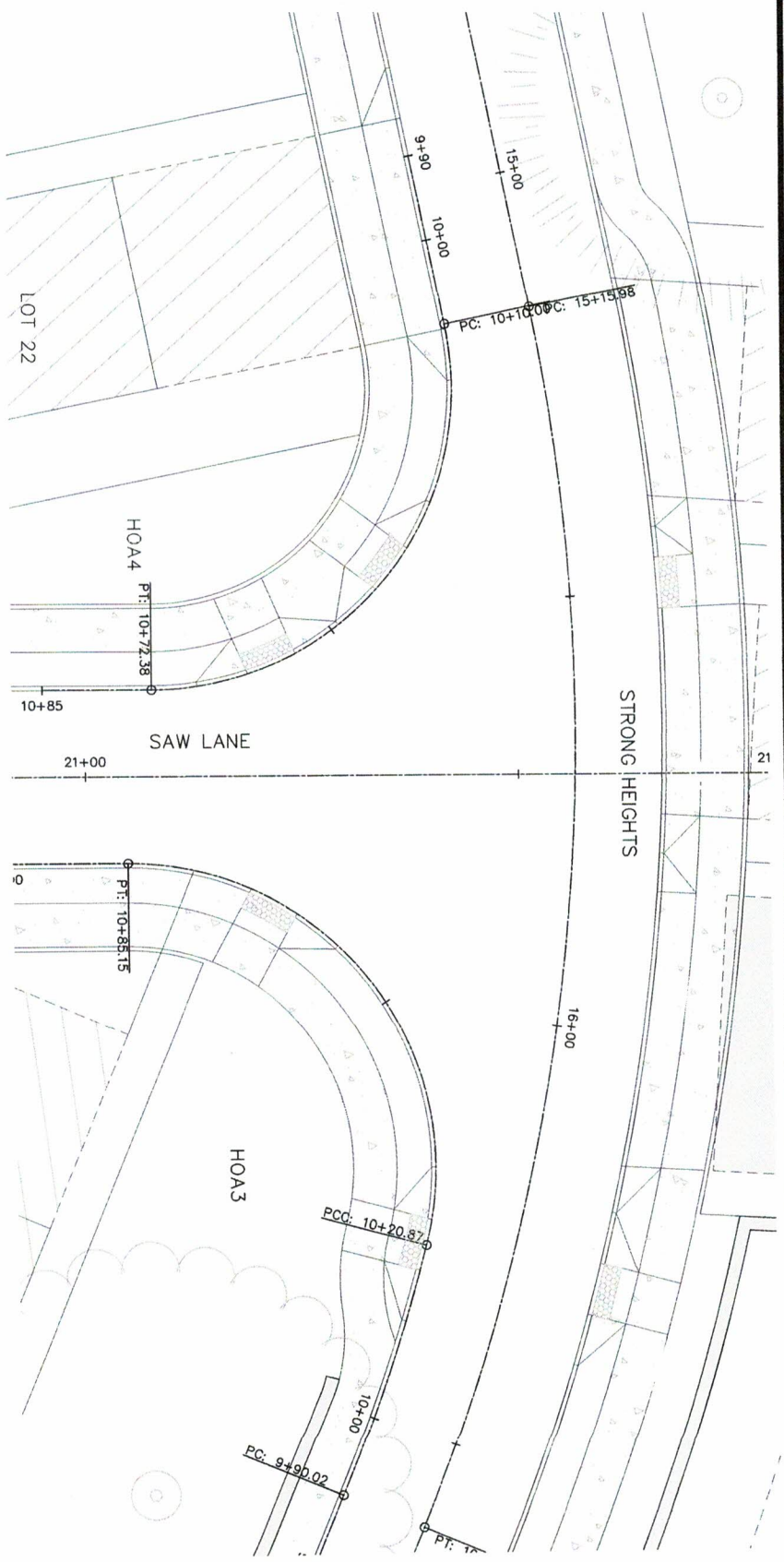
1" = 10' H, 1" = 1' V



EAST CURB RETURN PROFILE

1" = 10' H, 1" = 1' V





0 5 10 20
(feet)

WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

STRONG HEIGHTS/SAW LANE ADA RAMP DESIGN

DRAWING ST-7

JOB NUMBER 2720.7000.0

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
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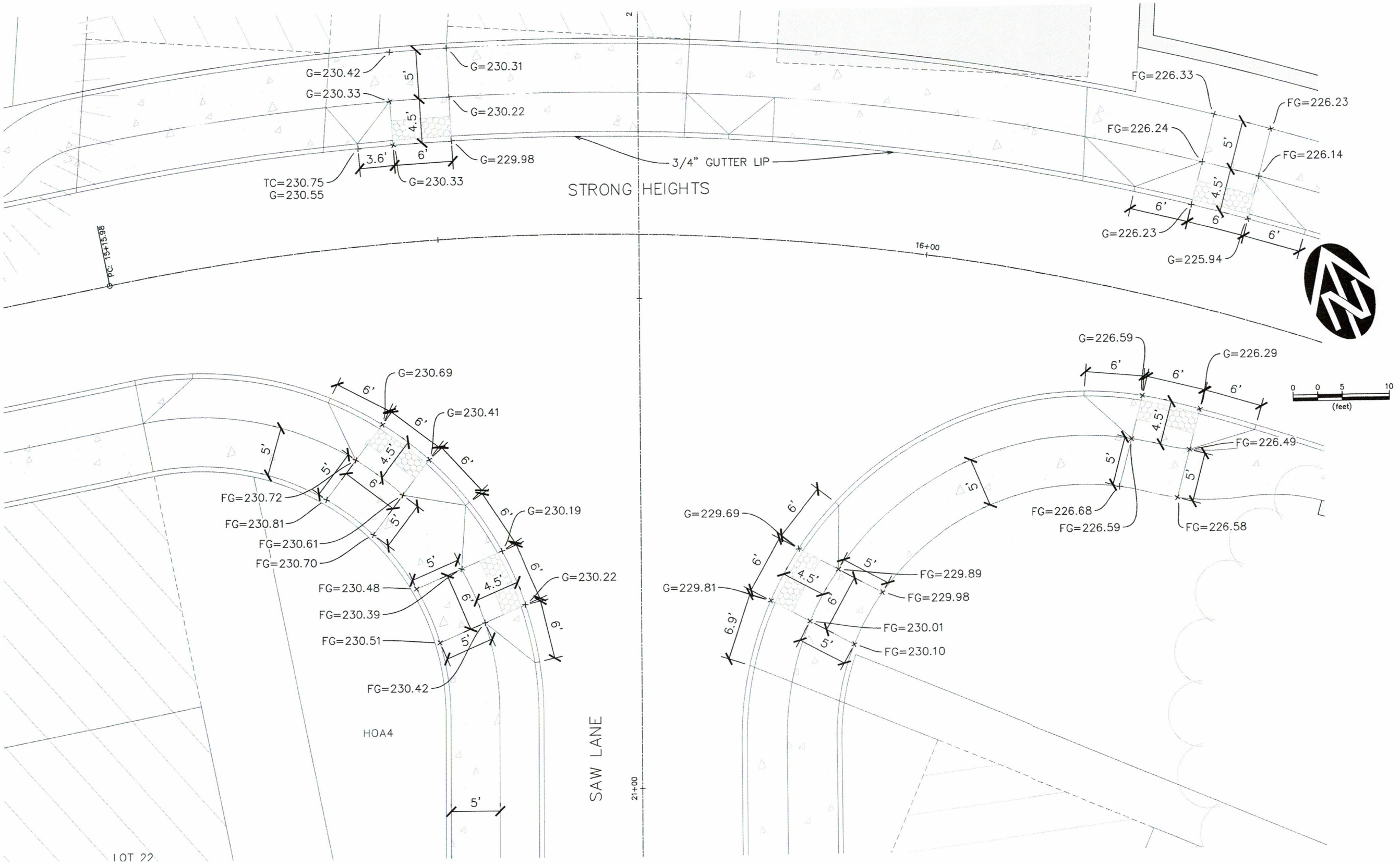
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

REGISTERED PROFESSIONAL ENGINEER 11843 OREGON JULY 16, 1982 STEVEN A. WARD
RENEWS: 6/30/2022

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

NO.	DATE	DESCRIPTION	BY
		REVISIONS	



NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
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IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1986
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

STRONG HEIGHTS/SAW LANE ADA RAMP GRADING

DRAWING
ST-8

JOB NUMBER
2720.7000.0

LEGEND

AC PAVEMENT
4" AC OVER 12" CR BASE
OVER COMPACTED SUBGRADE

HEAVY DUTY PCC
6" PCC OVER 2" CR BASE
OVER COMPACTED SUBGRADE

LIGHT DUTY PCC
4" PCC OVER 2" CR BASE
OVER COMPACTED SUBGRADE

(W) RETAINING WALL (DTL 8310A)

(C) CURB (SEE DWG ST-2)

(E) END CURB

(S) SAWCUT

(M) MATCH

0 15 30 60
(feet)

LOT 8
5163 SF

LOT 7
4585 SF

LOT 6
3782 SF

LOT 5
3519 SF

LOT 4
3364 SF

LOT 3
3360 SF

LOT 2
3398 SF

LOT 1
3930 SF

HOA1

HOA2

HOA3

HOA4

HOA5

LOT 9
2681 SF

LOT 10
2602 SF

LOT 11
2591 SF

LOT 12
2590 SF

LOT 13
2590 SF

LOT 14
2640 SF

LOT 15
2597 SF

LOT 16
2879 SF

LOT 17
4078 SF

LOT 18
3280 SF

LOT 19
4293 SF

LOT 20
3378 SF

LOT 21
4534 SF

LOT 22
2966 SF

LOT 23
3346 SF

LOT 24
3319 SF

LOT 25
3294 SF

LOT 26
3326 SF

LOT 27
3715 SF

LOT 28
5235 SF

LOT 29
5370 SF

STRONG HEIGHTS

SAW LANE

REED RD (CR 251)

STRONG RD

FUTURE PARKING
LOT & WALKWAY
BY OTHERS

HC RAMP
PER COS DTL 307D & 307E
6 REQUIRED

NEW PCC D/W
PER COS DTL 302

NO.	DATE	DESCRIPTION	BY
		REVISIONS	
1			

VERIFY SCALE
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0 1"

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1994
STEVEN A. WARD
RENEWS: 6/30/2022

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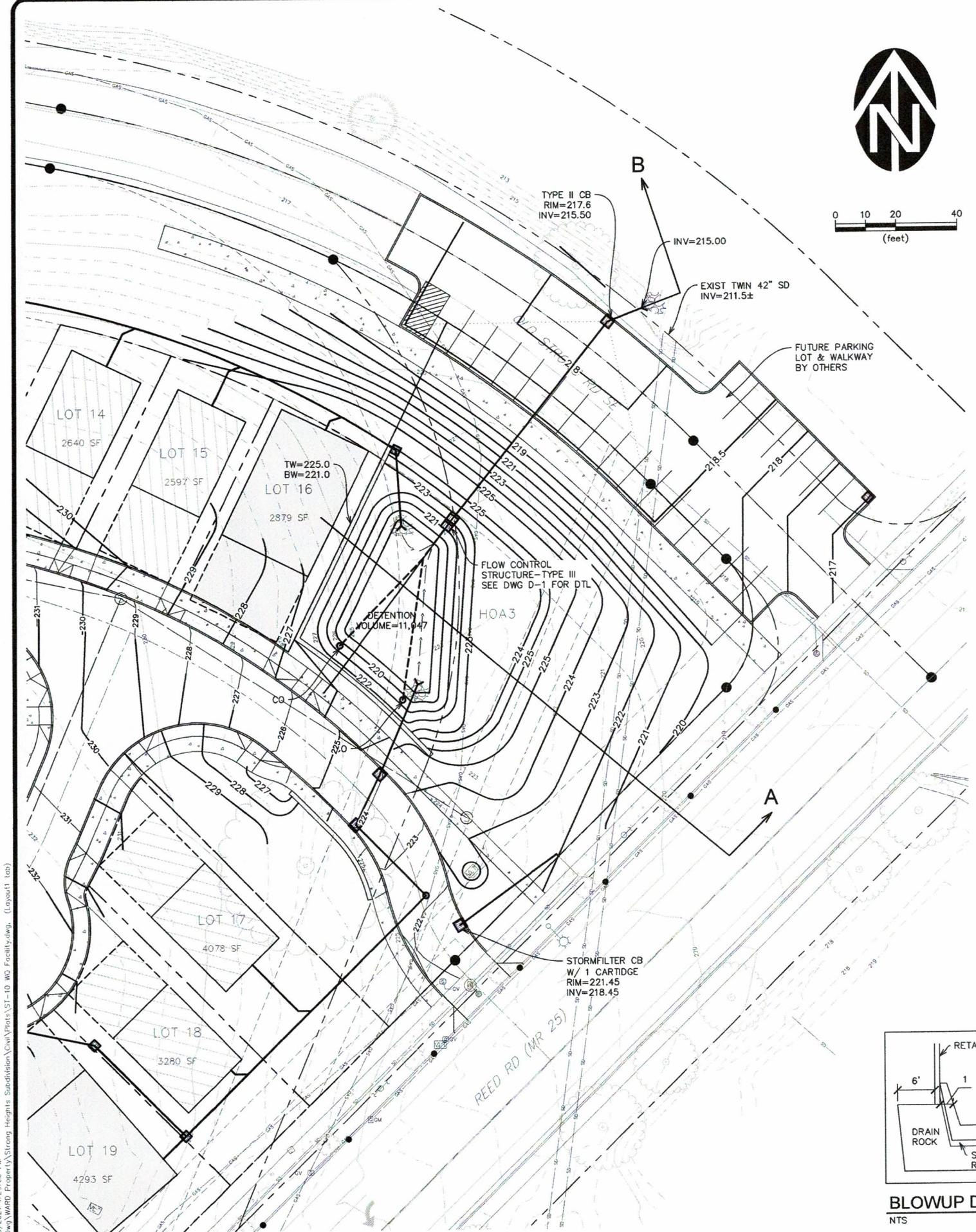
E-mail: westech@westech-eng.com

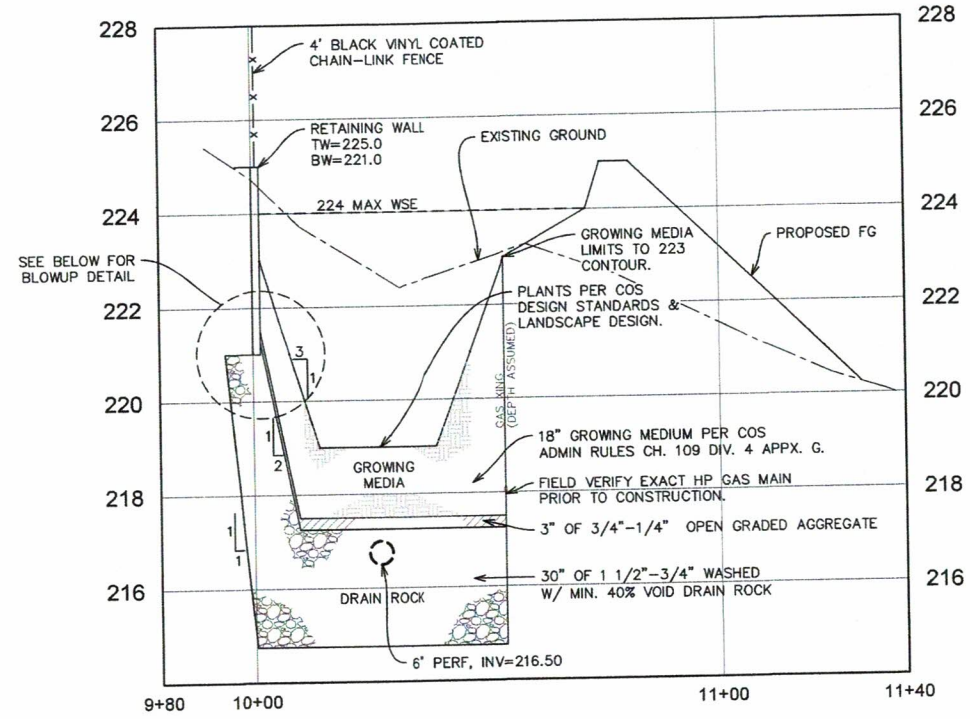
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

SURFACING PLAN

DRAWING
ST-9

JOB NUMBER
2720.7000.0



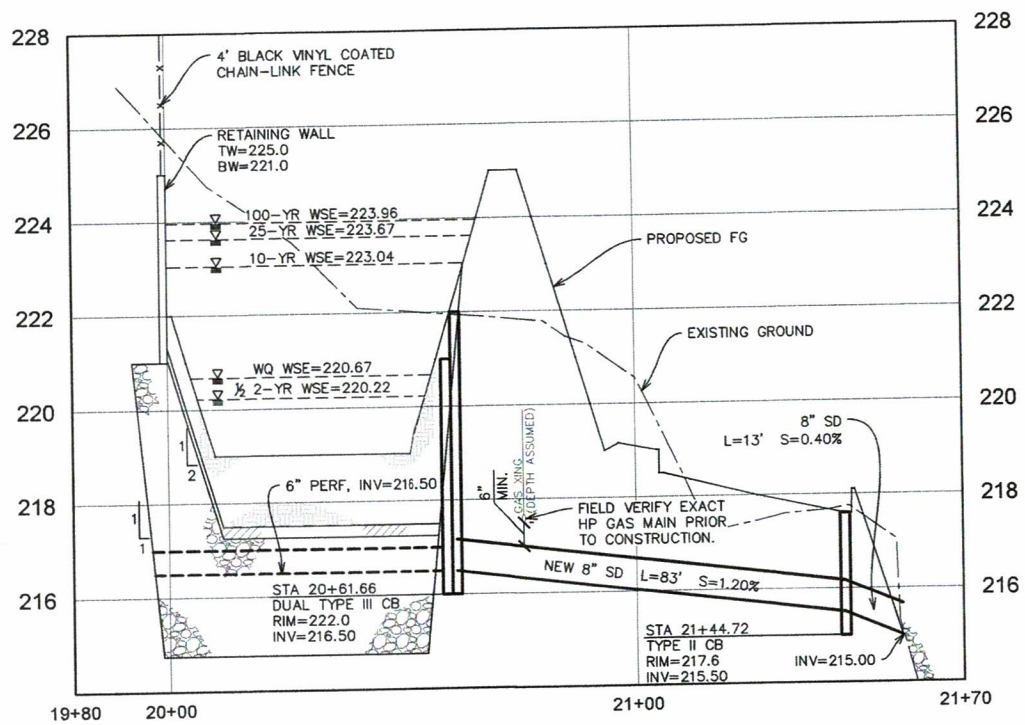


SECTION A PROFILE

1" = 20' H, 1" = 2' V

NOTES:

1. SCARIFY EXISTING SUBGRADE FOLLOWING THE INITIAL EXCAVATION & BEFORE INSTALLING ROCK OR GROWING MEDIUM.
2. PRIOR TO INSTALLATION OF GROWNG MEDIUM CONTRACTOR TO SUBMIT SIEVE ANALYSIS, VERIFY & TEST GROWNG MEDIUM FOR MIN. 4" / HR INFILTRATION, AND SUBMIT RESULTS TO ENGINEER.



SECTION B PROFILE

1" = 20' H, 1" = 2' V

BLOWUP DETAIL

NTS

NO.	DATE	DESCRIPTION
1		REVISIONS BY

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1982
STEVEN A. WEST
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

WATER QUALITY FACILITY

DRAWING
ST-10

JOB NUMBER
2720.7000.0

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NOTE:

ALL RAIN DRAINS TO BE 4" DIAMETER. STUB ALL RAIN DRAINS 5' BEYOND PROPERTY LINE UNLESS OTHERWISE NOTED–EXTENSION TO HOME BY OTHERS.

LEGEND

(C) DRAIN TO CURB

(P) DRAIN TO PIPE

0 10 20 40 (feet)

SEE DWG ST-12 FOR NORTH SD PROFILE

SEE DWG ST-13 FOR SOUTH SD PROFILE

LOT 1 3930 SF
LOT 2 3398 SF
LOT 3 3360 SF
LOT 4 3364 SF
LOT 5 3519 SF
LOT 6 3782 SF
LOT 7 4585 SF
LOT 8 5163 SF
LOT 9 2681 SF
LOT 10 2602 SF
LOT 11 2591 SF
LOT 12 2590 SF
LOT 13 2590 SF
LOT 14 2640 SF
LOT 15 2597 SF
LOT 16 2879 SF
LOT 17 4078 SF
LOT 18 3280 SF
LOT 19 4293 SF
LOT 20 3378 SF
LOT 21 4534 SF
LOT 22 2966 SF
LOT 23 3346 SF
LOT 24 3319 SF
LOT 25 3294 SF
LOT 26 3326 SF
LOT 27 3715 SF
LOT 28 5235 SF
LOT 29 5370 SF

HOA1 HOA2 HOA3 HOA4 HOA5

TW=225.0 BW=221.0

TW=225.0 BW=221.0

TW=226.0 BW=224.0

TELCO CENTURY LINK

STRONG RD

REED RD (MR 25)

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

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0 1"
DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1977
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
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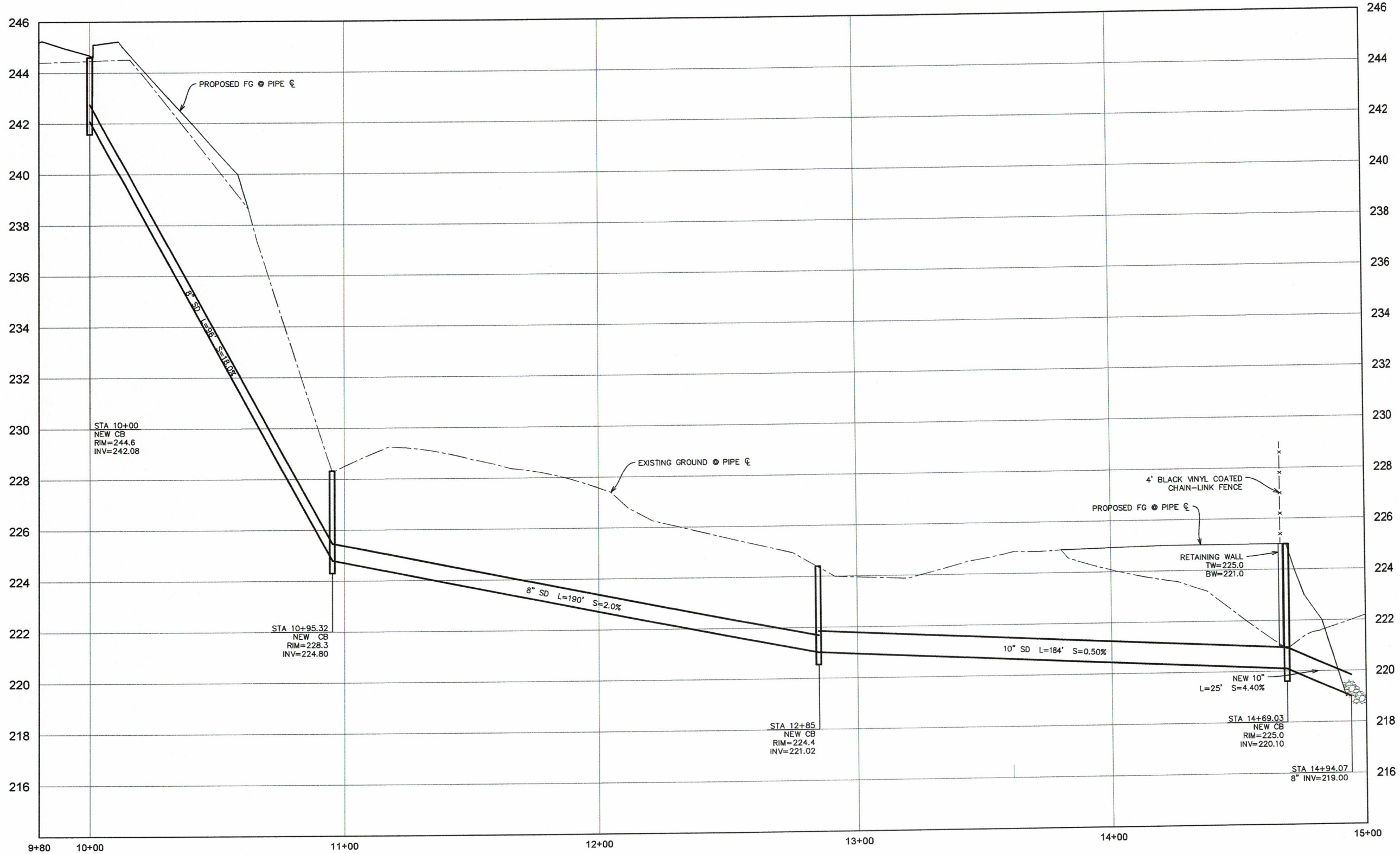
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

OVERALL GRADING & DRAINAGE PLAN

DRAWING
ST-11

JOB NUMBER
2720.7000.0



STRONG HEIGHTS NORTH SD PROFILE

1" = 20' H, 1" = 2' V

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VERIFY SCALE
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0 1"
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DSN.	SAW		
DRN.	AR	1	
CKD.	SAW	NO.	DATE
DATE:	FEB 2021		

REVISIONS

NO.	DATE	DESCRIPTION	BY

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1983
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

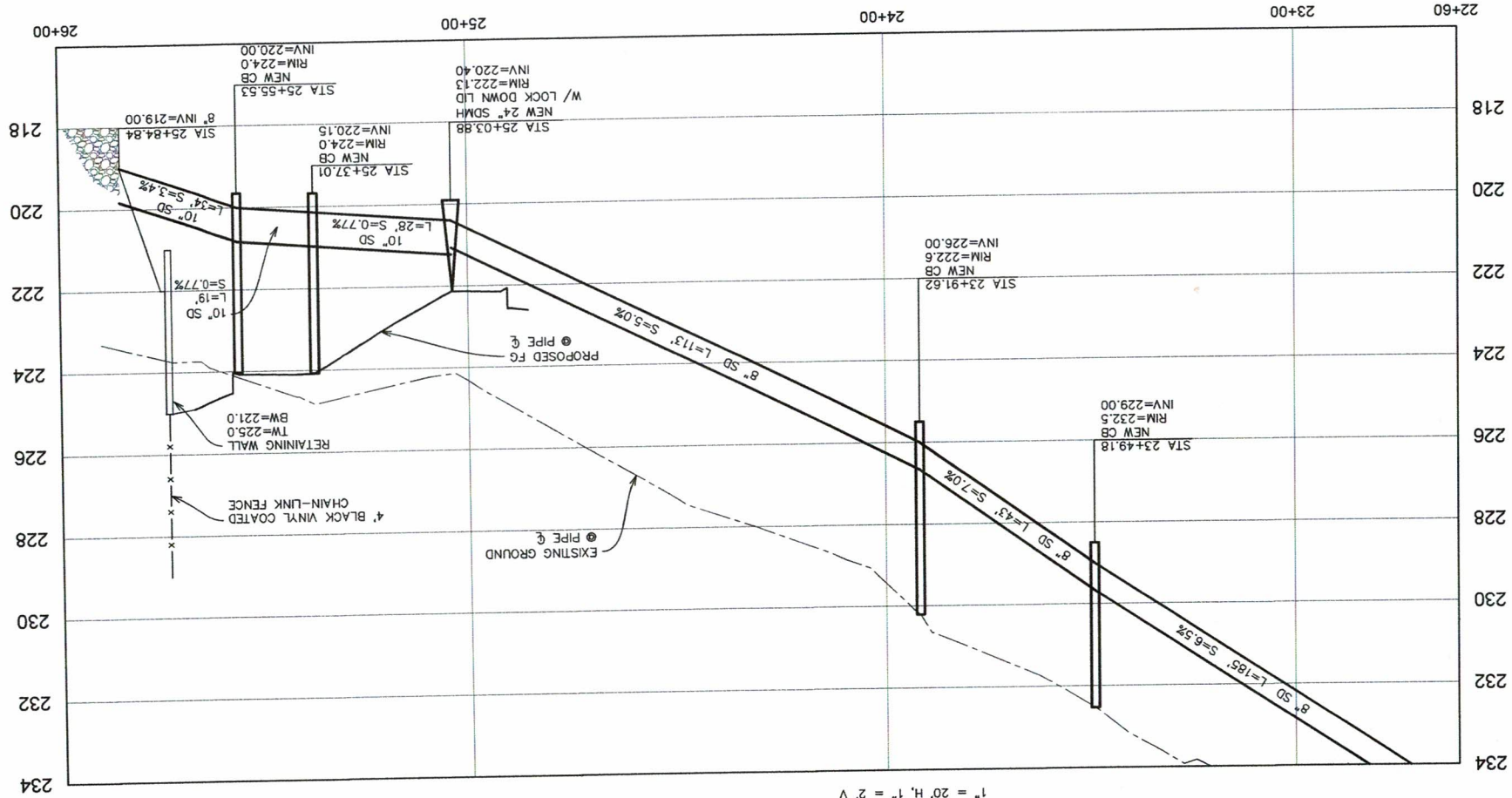
PRIVATE STORM DRAIN PLAN-PROFILE

DRAWING
ST-12

JOB NUMBER
2720.7000.0

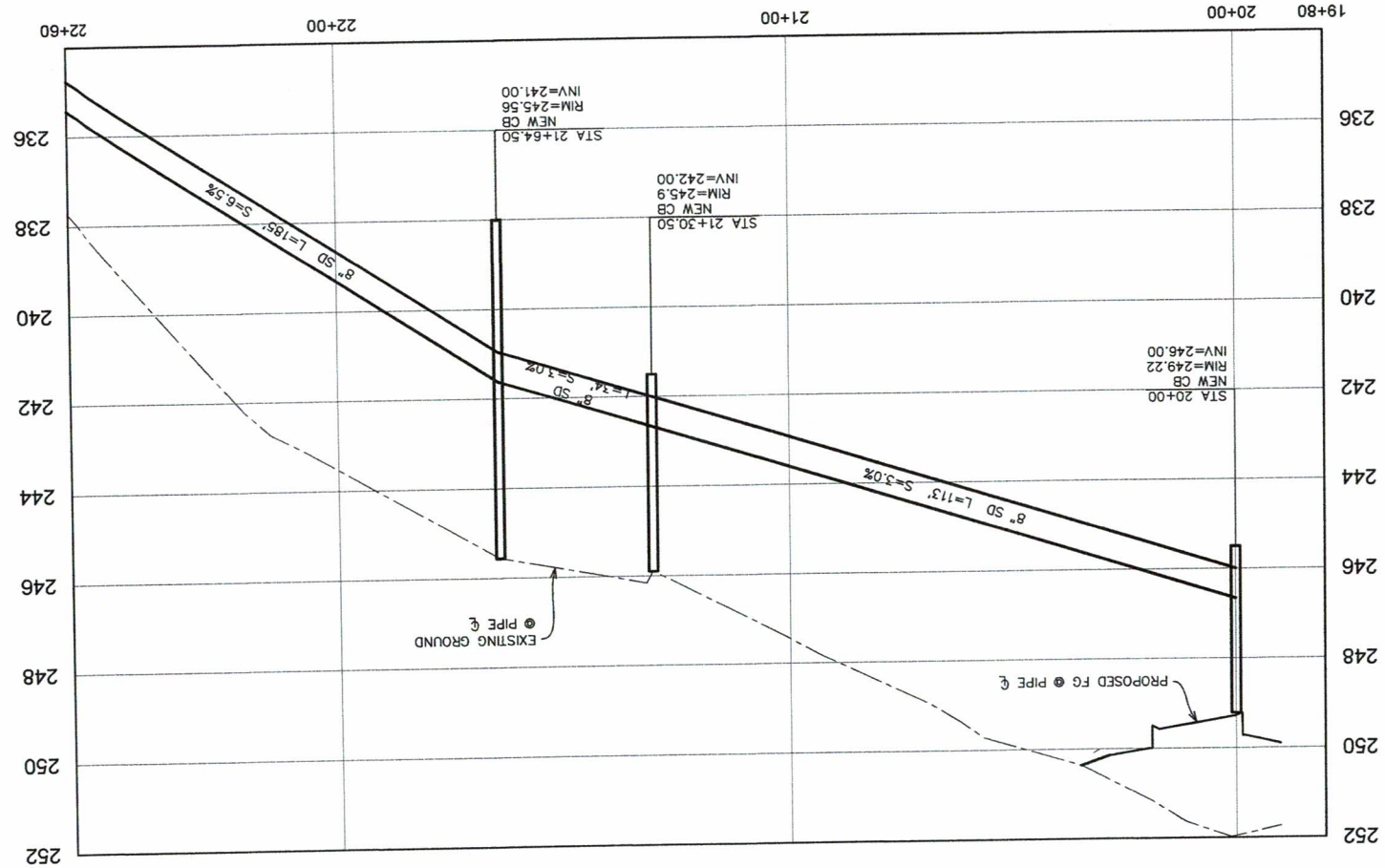
STRONG HEIGHTS SOUTH SD PROFILE

1" = 20' H, 1" = 2' V



STRONG HEIGHTS SOUTH SD PROFILE

1" = 20' H, 1" = 2' V



WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

PRIVATE STORM DRAIN PLAN–PROFILE

DRAWING ST–13

JOB NUMBER 2720.7000.0

WESTECH ENGINEERING, INC.
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E-mail: westech@westech-eng.com

REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 15, 1981
STEVEN A. WARD
11849
RENEWAL: 6/30/2022

VERIFY SCALE
IF THIS BAR IS NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
0 1"

NO.	DATE	DESCRIPTION	BY
1			

REVISIONS

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

LOT 8
5163 SF
HOA3
LOT 7
4585 SF
LOT 6
3782 SF
LOT 5
3519 SF
LOT 4
3364 SF
LOT 3
3360 SF
LOT 2
3398 SF
LOT 1
3930 SF
LOT 9
2661 SF
LOT 10
2602 SF
LOT 11
2591 SF
LOT 12
2590 SF
LOT 13
2590 SF
LOT 14
2640 SF
LOT 15
2597 SF
LOT 16
2879 SF
LOT 17
4078 SF
LOT 18
3280 SF
LOT 19
4293 SF
LOT 20
3378 SF
LOT 21
4534 SF
LOT 22
2966 SF
LOT 23
3346 SF
LOT 24
3319 SF
LOT 25
3294 SF
LOT 26
3326 SF
LOT 27
3715 SF
LOT 28
5235 SF
LOT 29
5370 SF
HOA1
HOA2
HOA3
HOA4
HOA5
50' ESMT TO THE COS
8" PRIVATE SD
STRONG HEIGHTS LANE (PVT)
8" PUBLIC SS
8" PUBLIC W/L
SAW LANE (PVT)
REED RD (MR 23)
OLD STRONG
FUTURE PARKING LOT & WALKWAY BY OTHERS
STA 12+86.27
8" 45° & 22.5° BENDS & TB
STA 12+38.05
8" 22.5° & 11¼° BENDS & TB
STA 13+81.13
8"x6" TEE & TB
6" GV (S)
FH ASSY, 17.5' (S)
NEW FH
EXIST FH
STA 10+01.5
CHLORINATION TAP
STA 10+00
12"x8" TEE & TB
8" GV (N)
TAP BY CITY FORCES
STA 15+94.67=
STA 20+00
8"x8" TEE & TB
8" GV (S&W)
HOA3 WM
STA 21+36
BO ASSY
PI: 20+61.66
6" PERF S=0%
4" HOA3 IRR SLEEVE
SEE DWG U-5 FOR WATER CONNECTION
EXIST FH
3 REMOVABLE BOLLARDS
0 15 30 60 (feet)

NOTES:
1. CONTRACTOR TO PROVIDE ALL TRAFFIC CONTROL, SHORING,EXCAVATION, BACKFILL, & SURFACE RESTORATION FOR WORK REQUIRED BY COS PW.
2. HOA 1, 2, 4, & 5 IRRIGATION SERVICED BY ADJACENT LOT. HOA 3 SERVICED BY HOA 3 WM.

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 15, 1983
STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
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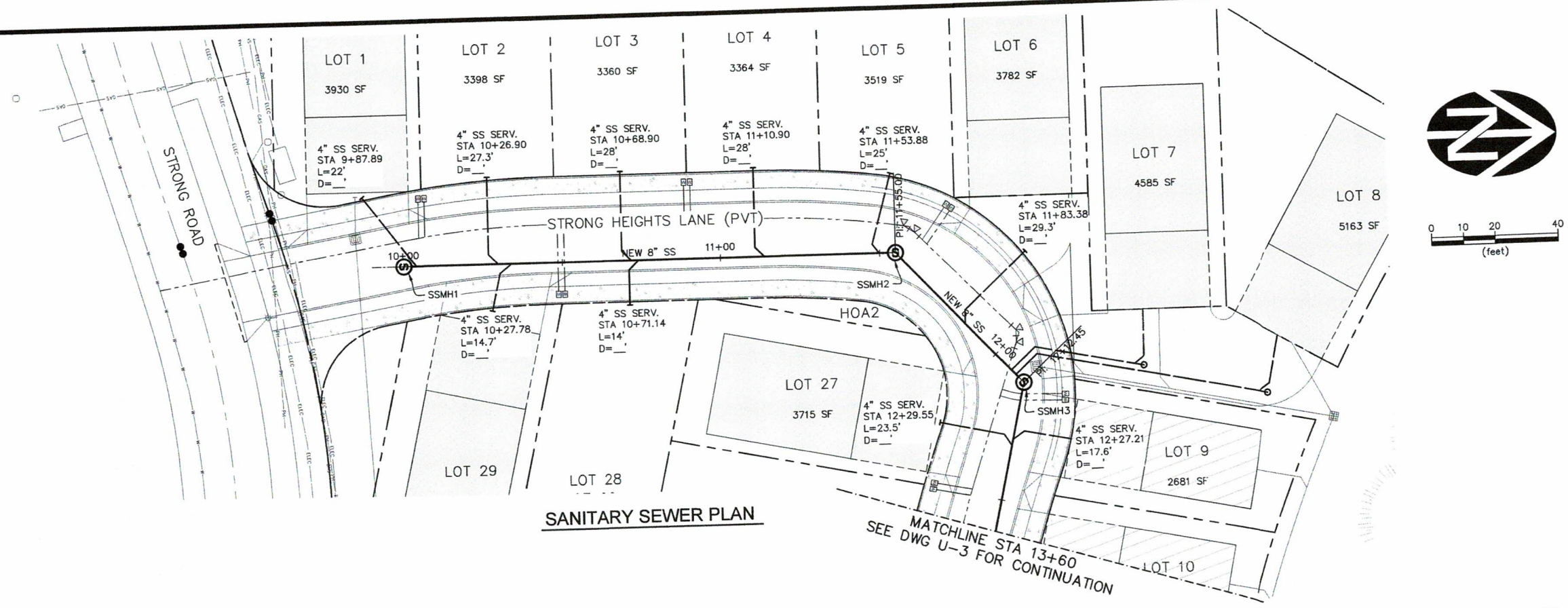
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

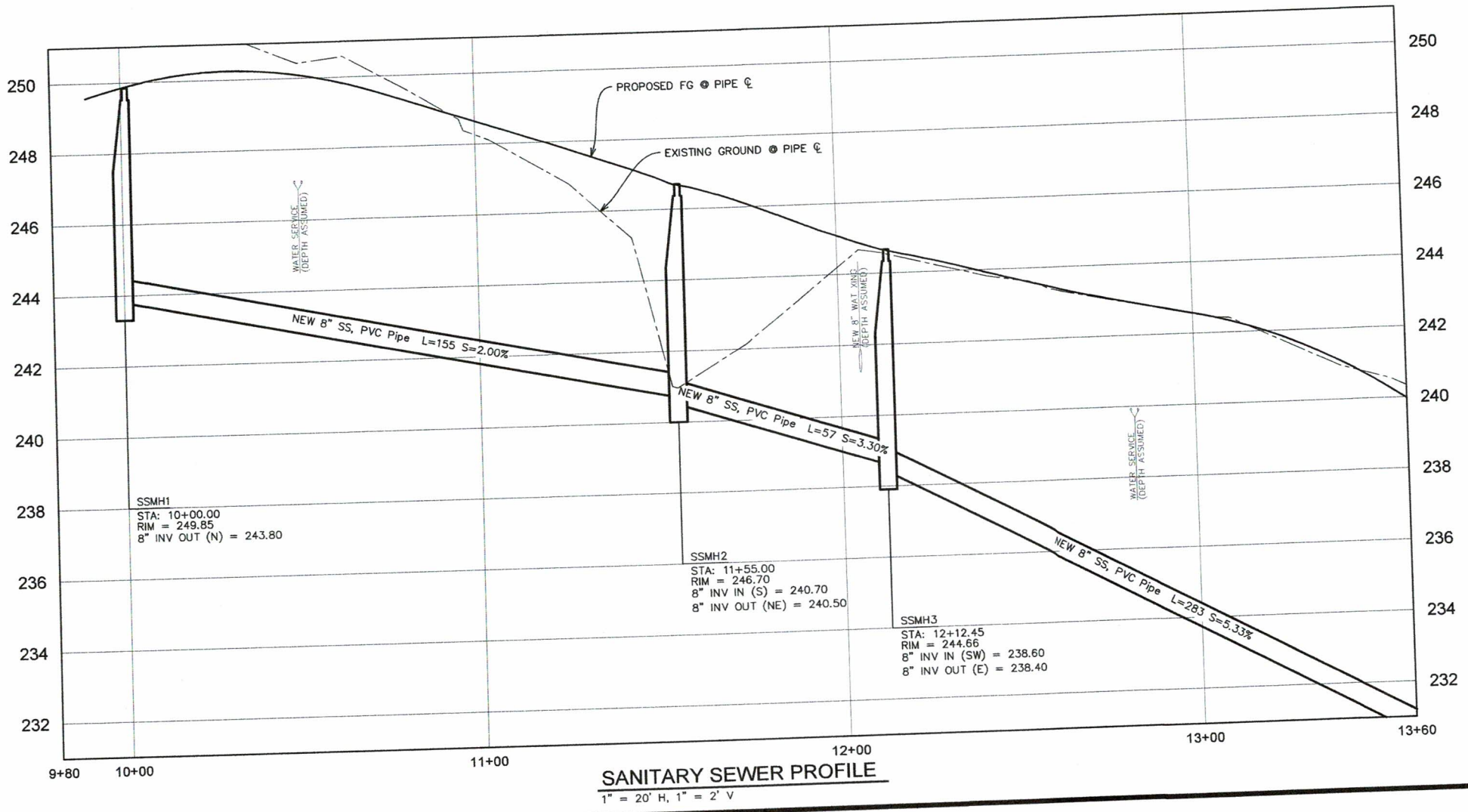
OVERALL UTILITY PLAN

DRAWING
U-1

JOB NUMBER
2720.7000.0



SANITARY SEWER PLAN



SANITARY SEWER PROFILE
1" = 20' H, 1" = 2' V

VERIFY SCALE
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0 1"

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1994
STEVEN A. WARD
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

STRONG HEIGHTS SANITARY SEWER PLAN–PROFILE STA 9+80 to STA 13+60

DRAWING
U–2

JOB NUMBER
2720.7000.0

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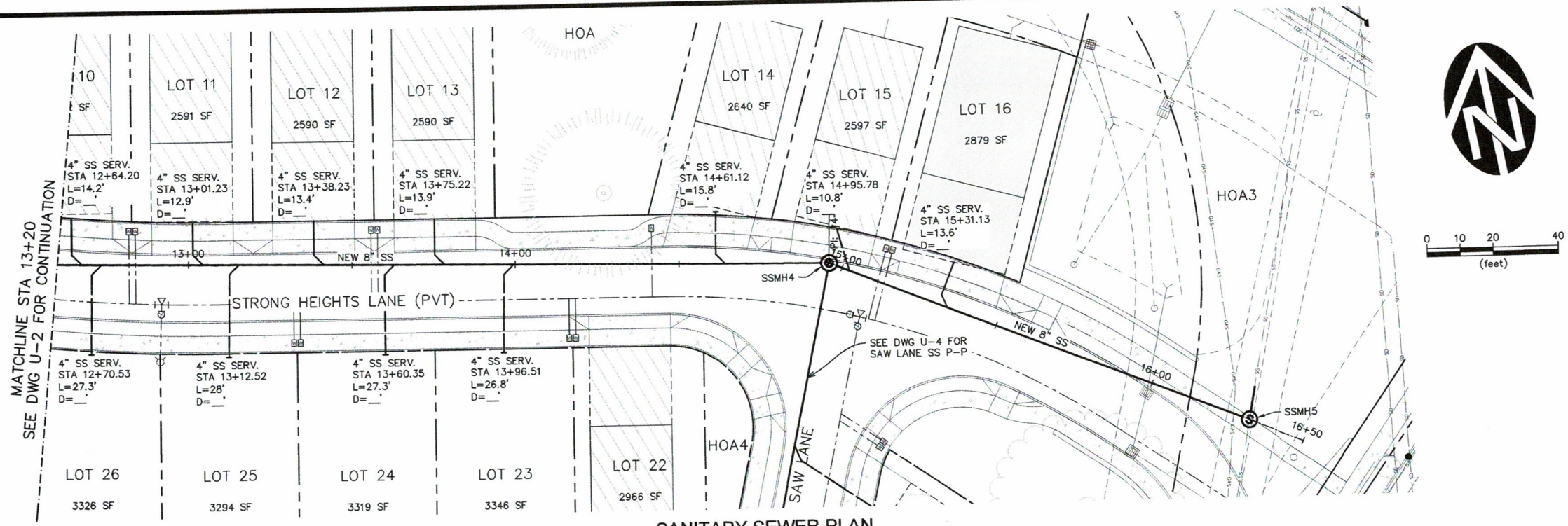
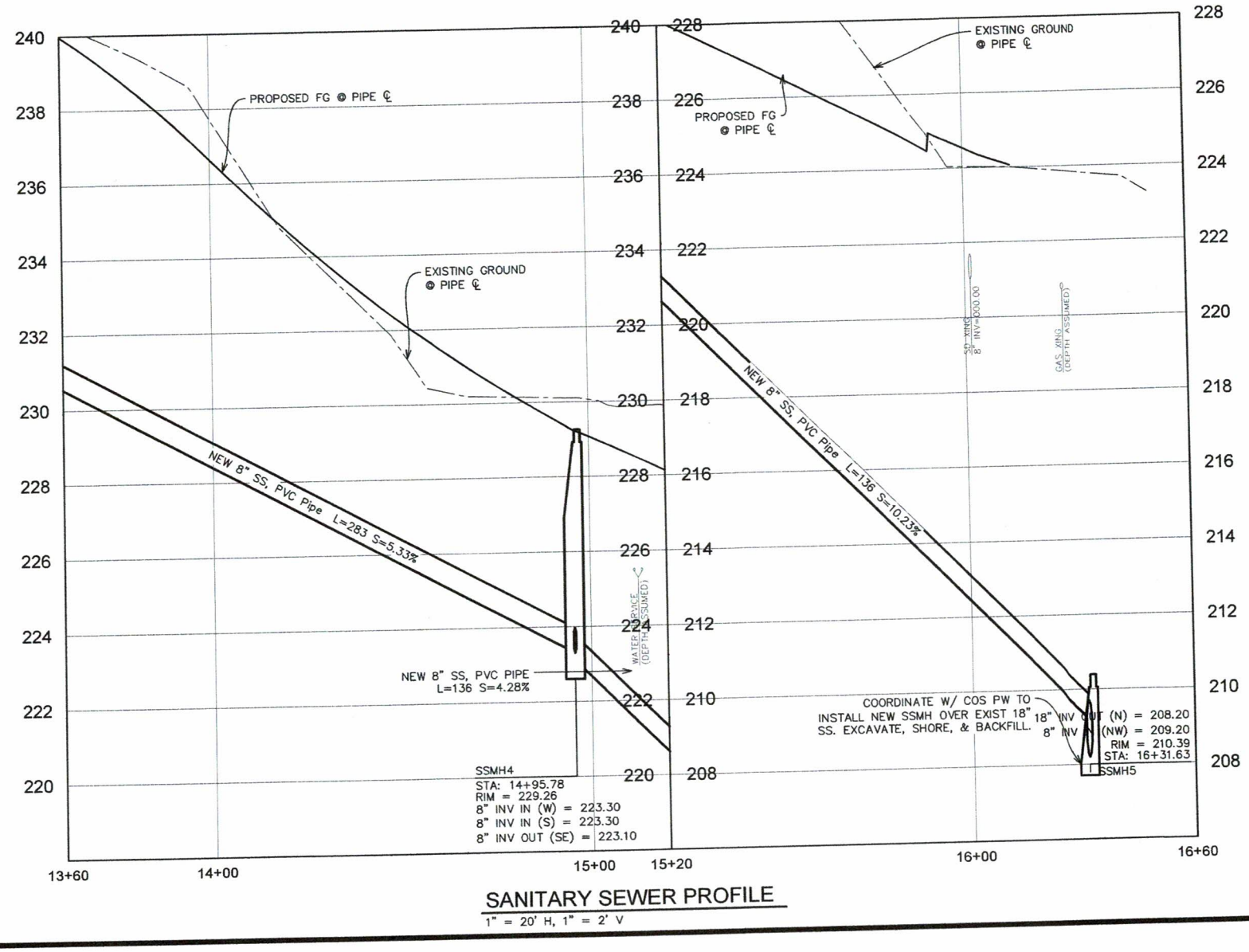


SANITARY SEWER PLAN



SANITARY SEWER PROFILE

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VERIFY SCALE
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IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
1"

DSN.	SAW
DRN.	AR
CKD.	SAW
DATE:	FEB 2021

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1994
STEVEN A. WARD
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

STRONG HEIGHTS SANITARY SEWER PLAN–PROFILE STA 13+60 to STA 16+60

DRAWING
U–3

JOB NUMBER
2720.7000.0

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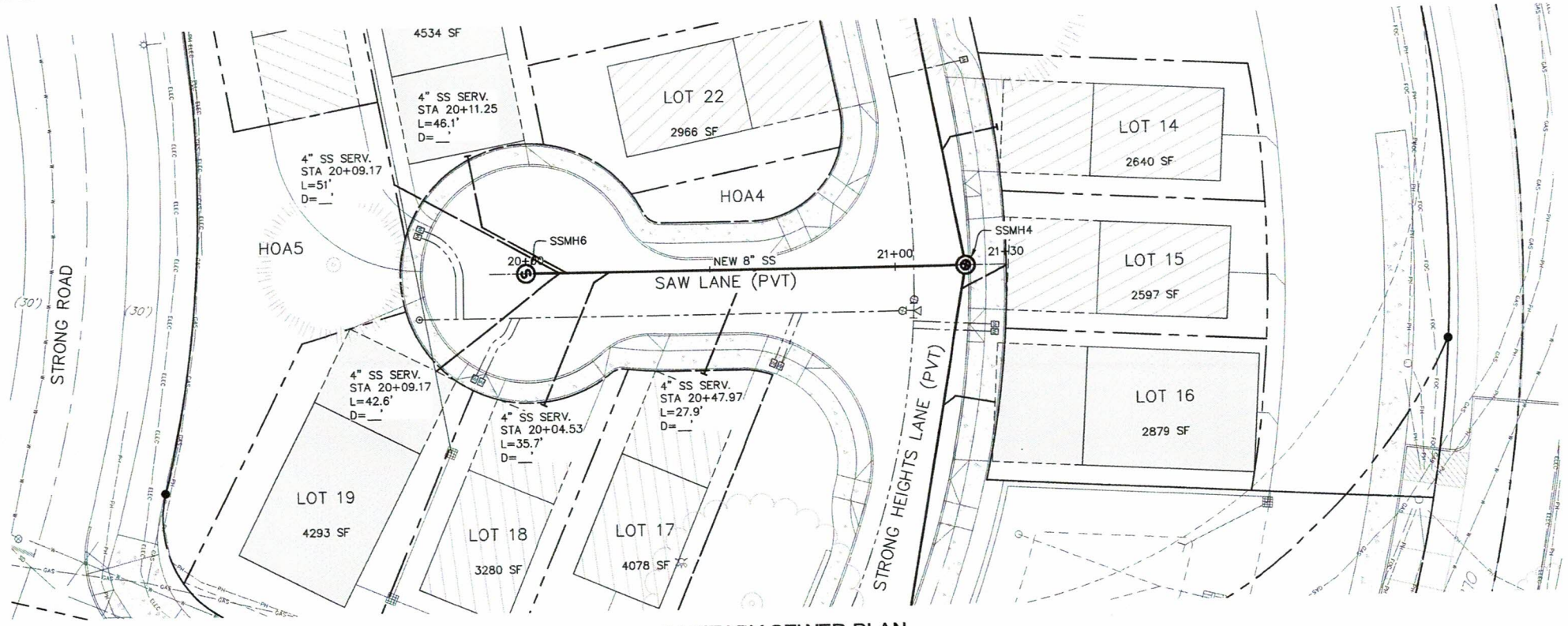
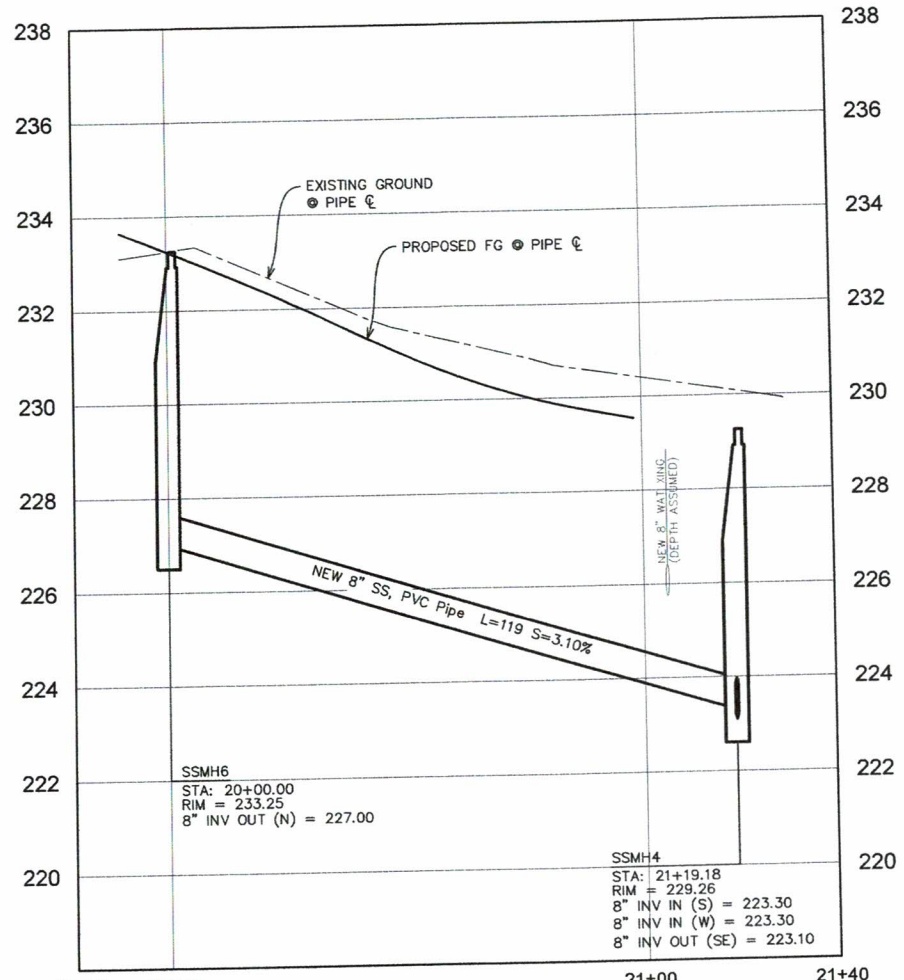


SANITARY SEWER PLAN



SANITARY SEWER PROFILE

1" = 20' H, 1" = 2' V

0 10 20 40
(feet)

NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
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0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1983
STEVEN A. WARD
RENEWS: 6/30/2022

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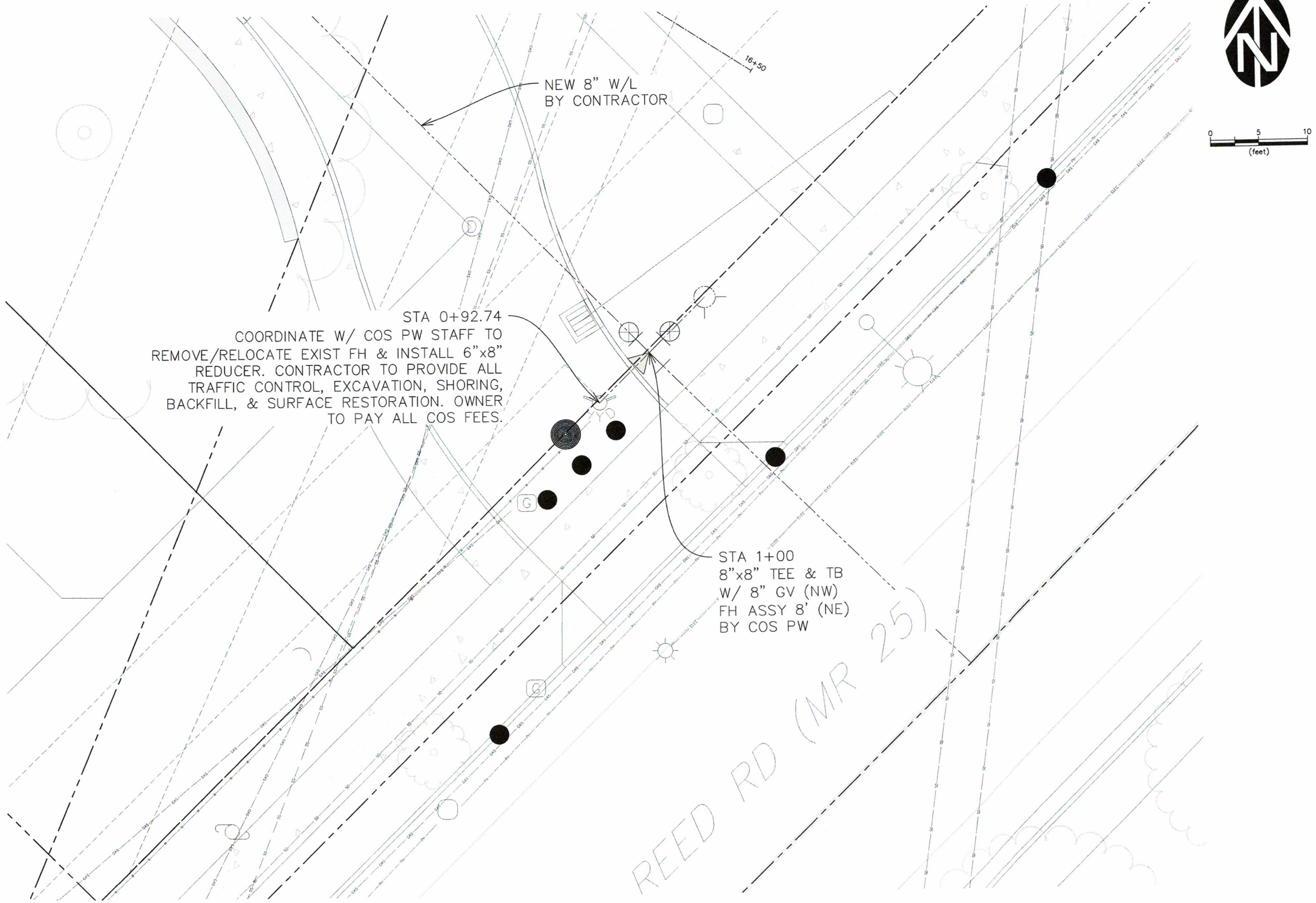
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

SAW LANE SANITARY SEWER PLAN–PROFILE STA 19+80 to STA 21+40

DRAWING
U–4

JOB NUMBER
2720.7000.0



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DRN.	AR
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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1989
STEVEN A. WARD
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

ENLARGED WATER CONNECTION DETAIL

DRAWING
U-5

JOB NUMBER
2720.7000.0

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PGE – OPTION C STREET LIGHTS (HOA OWNED/OPERATED)

CONDUITS: CONDUITS PER PLAN REQUIREMENTS. CONDUIT MAY BE PLACED IN COMMON TRENCH (PUE).

JUNCTION BOX: FOR UNDERGROUND CONDUCTORS AND CONNECTIONS:

JUNCTION BOX DESCRIPTION: JUNCTION BOX, CONCRETE POLYMER OR FIBERGLASS REINFORCED POLYMER, NO FLOOR, WITH SKID RESISTANT COVER ATTACHED BY TWO CAPTIVE PENTA-HEAD BOLTS, GRAY COLOR, AASTHTO H-10 LOADING RATING.LID LABELED "STREETLIGHTS". MANUFACTURERS NAME PERMANENTLY IDENTIFIED ON UNDERSIDE OF LID AND INSIDE WALL OF BOX. J.B'S SHALL BE PLACED WITH-IN THE SIDEWALK.

CIRCUIT RUNS WILL USE 2" NON-METALLIC CONDUIT WITH MINIMUM #/8 AWG XHHW WIRE, 2 CONDUCTORS AND 1 GROUND, 240 VOLT CIRCUIT. LOCATE WIRE WILL BE A #16 AWG ORANGE WITH BLUE TRACER WIRE ORIGINATING AT THE SERVICE CABINET RUNNING THROUGH ALL JUNCTION BOXES IN A CIRCUIT UP TO 2500' OF WIRE LENGTH TERMINATING IN A JUNCTION BOX. SPLICES IF REQUIRED MUST COMPLY WITH OREGON STANDARD DRAWING TM475 – LOOP WIRE TO LOOP FEEDER SPLICES. ALL SPLICES TO BE LOCATED IN A JUNCTION BOX. CONDUITS SHALL BE PLACED UNDER THE SIDEWALK.

LIGHTING REQUIREMENTS:
LEOTEK 88W LIGHT FIXTURE MOUNTED ON 35' (30' MOUNTING HT.) DIRECT BURY FIBERGLASS POLE WITH 6' MAST ARM PER PGE REQUIREMENTS FOR LINDBURG & LEOTECH 45W LIGHT FIXUTRE MOUNTED ON 30' (25' MOUNTING HT.) DIRECT BURY FIBERGLASS POLE WITH 6' MAST ARM PER PGE REQUIREMENTS FOR ALL INTERAL SUBDIVISION STREETS.

EACH LIGHT NOT REQUIRED TO HAVE A PHOTOELECTRIC SENSOR SHALL BE FITTED WITH A SHORTING CAP WHERE NEEDED TO MAINTAIN THE CIRCUIT. WATTAGE AND TYPE OF LED LUMINAIRE TO PROVIDE THE REQUIRED LIGHT PATTERN MEETING CITY STANDARDS.

LONG LIFE PHOTOCELL ELECTRONIC RELAY WILL BE MOUNTED ON FIRST LIGHT OF ONE CIRCUIT. CONNECTION WILL UTILIZE A MINIMUM OF 3 #12 WIRES BACK TO SERVICE CABINET. THE LONG LIFE PHOTO CELL PGE IS USING IS A SELC EXTENDED LIFE PHOTO CONTROL, TWIST-LOCK, 105-305V (PGE P/N 90002719, CATALOG 8483).

EACH LIGHT WILL HAVE A 20" X 15" X 12" PRECAST JUNCTION BOX PLACED IN THE SIDEWALK OR WITH A 12" CONCRETE APRON IF LOCATED IN LANDSCAPING. THE LIGHT WILL CONNECT USING A 1" CONDUIT USING #10 AWG WIRES, AND FITTED WITH A 2 POLE FUSE SYSTEM SIMILAR TO A LITTLEFUSE LEY SERIES USING REUSABLE CONNECTORS AND LOCATED IN THE JUNCTION BOX.

STANDARD SERVICE CABINET WILL BE A COOPER B-LINE CUP-4111 STREET LIGHT CONTROLLER CABINET ON AN MB1515 MOUNTING PAD INCLUDING GROUND RODS PER COD (OR APPROVED EQUAL). 100 AMP 2 POLE MAIN BREAKER, 20 AMP 2 POLE BRANCH BREAKERS (1 PER CIRCUIT), 30 AMP 2 POLE LIGHTING CONTACTOR (1 PER CIRCUIT), AND 1 – 15 AMP TEST SWITCH WHICH WILL ACTIVATE ALL LIGHTS. CABINET WILL BE SECURED WITH A TRAFFIC SECTION PROVIDED PADLOCK.

NOTES:

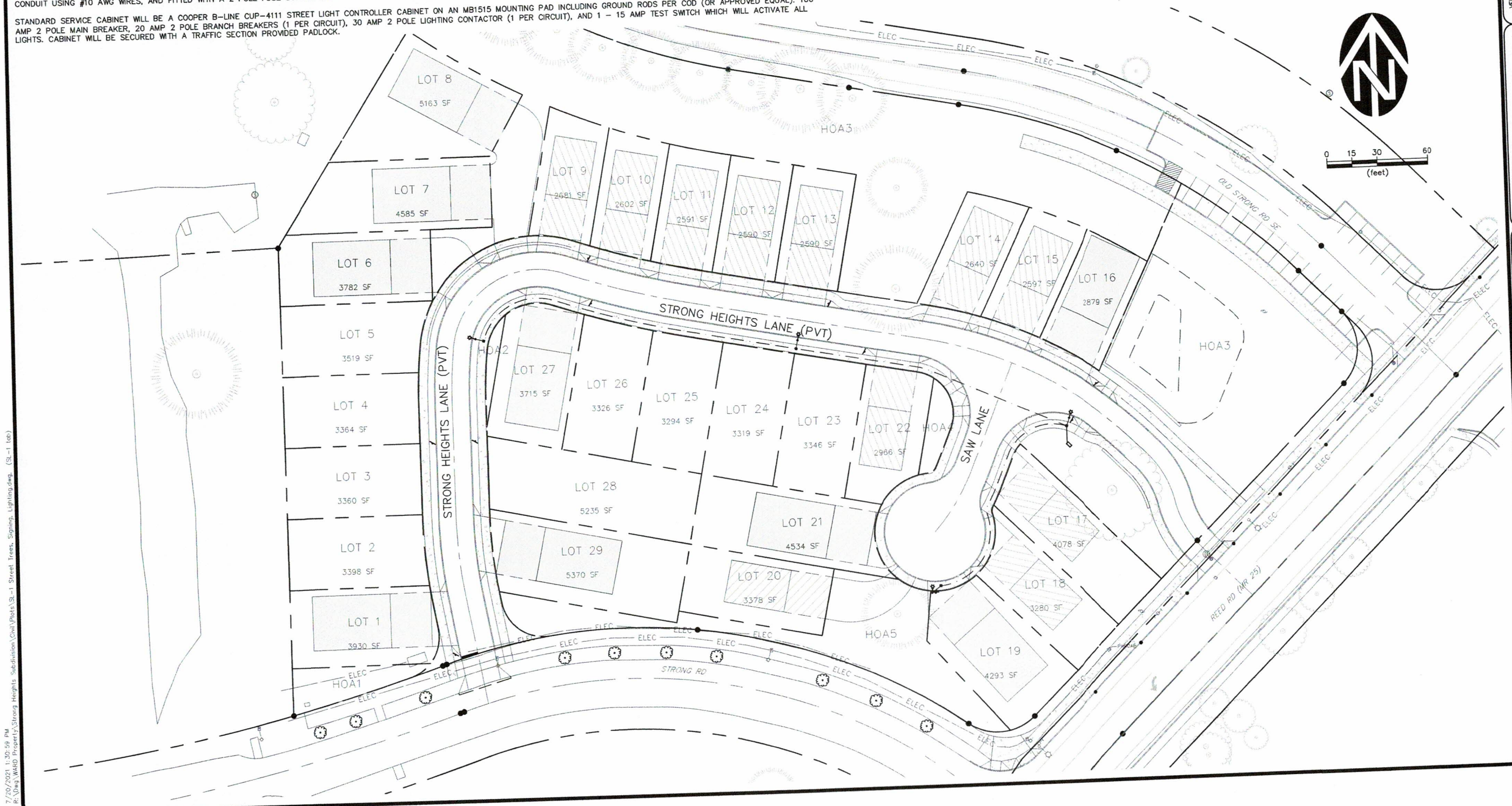
1. ALL PAVEMENT MARKINGS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS CONTAINED IN THE LATEST EDITION OF THE OREGON DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION INCLUDING ANY SUPPLEMENTAL GUIDES REFERENCED OR SPECIFIED AND ALL SPECIAL PROVISIONS AND ADDENDUMS TO THESE SPECIFICATIONS. SEE 2017 "BROWN BOOK" VERSION.
2. ALL PAVEMENT MARKING DESIGNS SHALL COMPLY WITH THE LATEST EDITION OF THE OREGON DEPARTMENT OF TRANSPORTATION TRAFFIC LINE MANUAL, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE OREGON SUPPLEMENTS TO THE MUTCD, AND ANY SUPPLEMENTAL GUIDES REFERENCED OR SPECIFIED, INCLUDING ANY SPECIAL PROVISIONS OR ADDENDUMS TO THESE SPECIFICATIONS.
3. DURABLE STRIPING IS SYNONYMOUS WITH METHYL METHACRYLATE MATERIAL STRIPING.
4. LOCATE STOP BARS 10' BACK OF THE EXTENDED FOG LINE, EDGE OF PAVEMENT OR CURB FACE. VERIFY SIGHT DISTANCE. LOCATIONS TO BE VERIFIED IN THE FIELD BY TRAFFIC ENGINEER.
5. ALL PAINTED PAVEMENT MARKINGS SHALL CONFORM TO THE MOST CURRENT ODOT SPECIFICATION FOR BEAD BINDER PAINT. COPIES OF THE MATERIALS SPECIFICATIONS ARE AVAILABLE FROM:

   ENGINEER OF MATERIALS AND RESEARCH
   HWY. MATERIALS LABORATORY
   600 AIRPORT ROAD S.E.
   SALEM OR. 97310
   (503) 986-3100

6. LOCATE SIGN POST 2' FROM PROPERTY LINE (MIN.)

LEGEND

1. STOP SIGN (COS DETAIL 323)
2. STREET SIGN (COS DETAIL 323)
3. STOP BAR (COS DETAIL 322A)
4. NO PARKING SIGN (COS DETAIL 323)



NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

VERIFY SCALE
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0" 1"
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DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 1994
STEVEN A. WARD
RENEWS: 6/30/2022

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WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

OVERALL STREET TREES, SIGNING, & STREET LIGHTING

DRAWING
SL-1

JOB NUMBER
2720.7000.0

7/20/2021 1:31:02 PM
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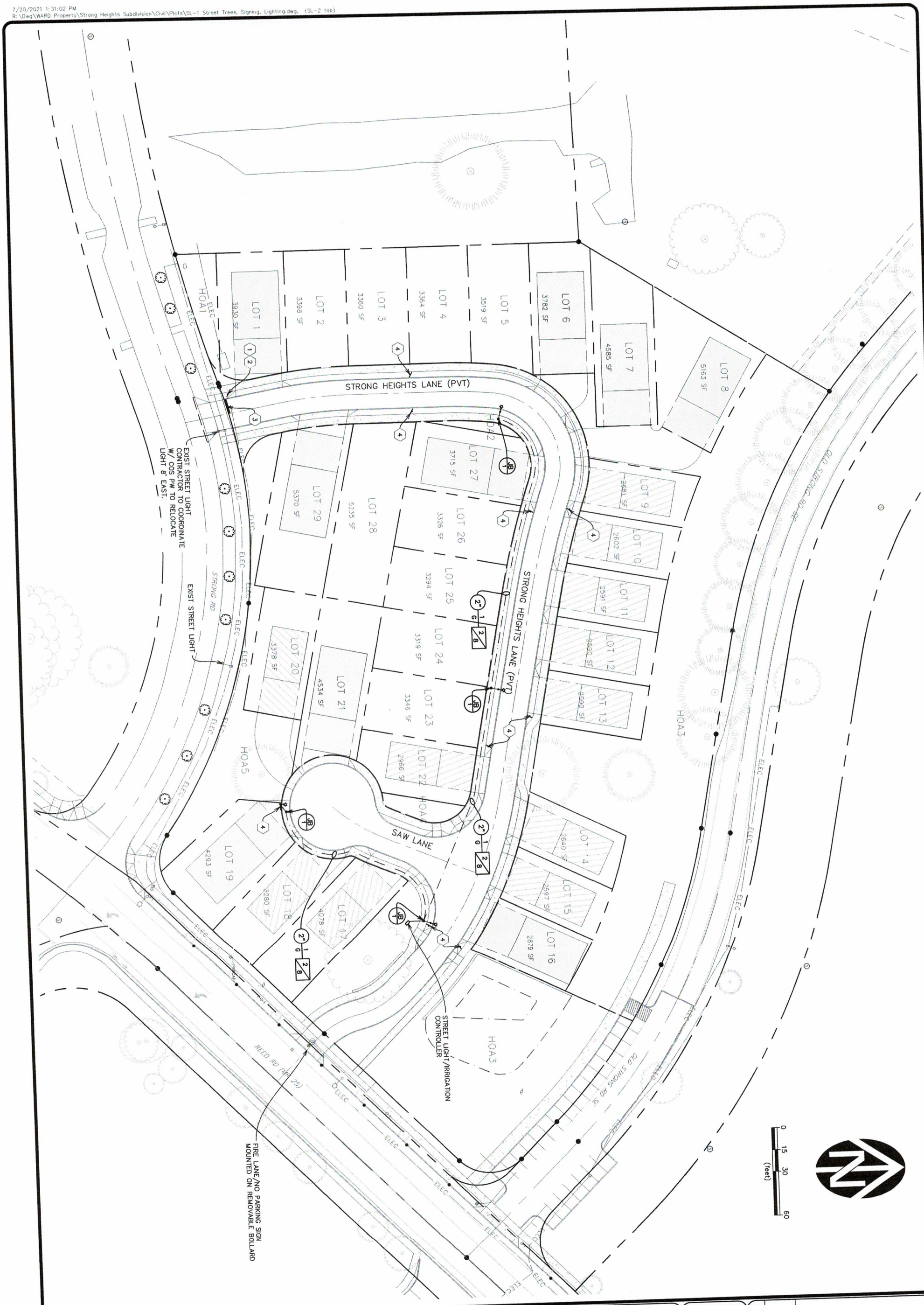

WARD DEVELOPMENT, LLC

STRONG HEIGHTS SUBDIVISION

STREET TREES, SIGNING, & STREET LIGHTING

DRAWING SL-2

JOB NUMBER 2720.7000.0

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REGISTERED PROFESSIONAL ENGINEER
11843
OREGON
JULY 16, 1982
STEVEN A. WARD
RENEWS: 6/30/2022

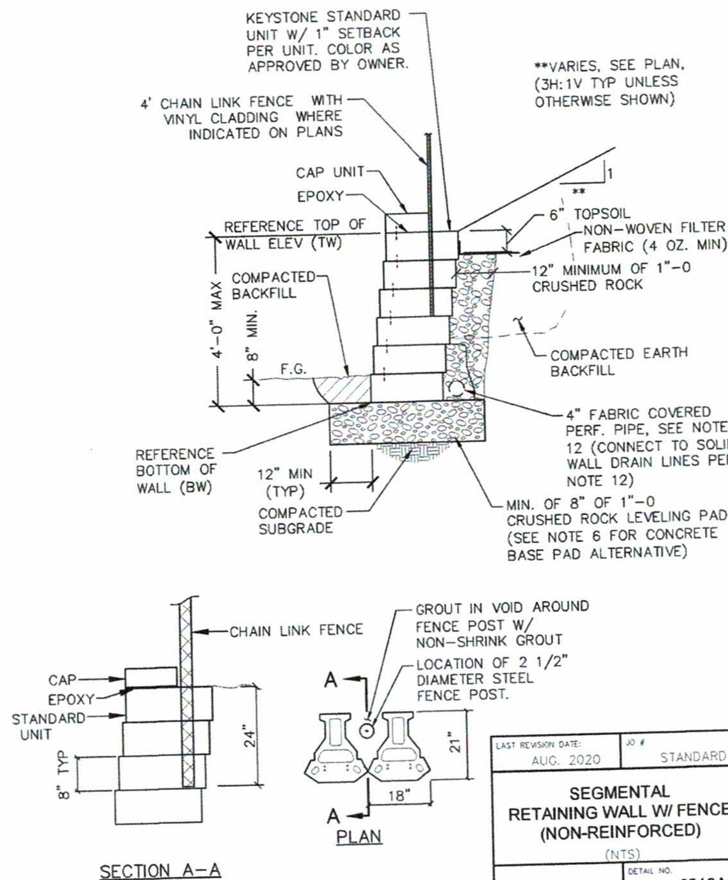
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

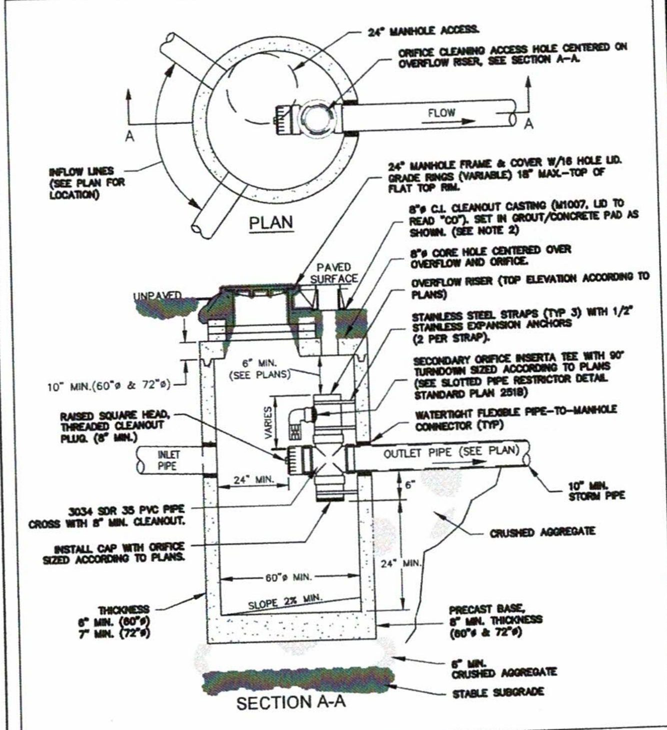
NO.	DATE	DESCRIPTION	BY
1		REVISIONS	

RETAINING WALL NOTES:

1. Segmental Retaining Wall (SRW) concrete units shall be the standard color, rough face finish and conform to the requirements of ASTM C-90, ASTM C-140 and ASTM C-145. Owner to select color from samples submitted by Contractor.
2. Segmental concrete block units shall conform to the Keystone TM, Retaining Wall system, manufactured by Keystone TM, Pacific Northwest Inc., or an approved alternate and conform to the requirements of ASTM C-90. The wall design is based upon **Keystone Standard units (8"H x 18"W x 21.5"; 105 lbs.)**.
3. The Keystone retaining wall, or approved equal, shall be constructed per manufacturer specifications and approved construction drawings, unless modified herein.
4. This SRW design is based upon the blocks specified above. The Contractor, may, at no additional cost to the owner, submit SRW design and shop drawings for an alternate SRW system for approval by the Owner's representative. The shop drawings shall include design calculations stamped by a professional engineer registered in the State of Oregon. Special inspection requirements, as specified herein, still apply to the substitute design. If the alternate wall system is approved, the Contractor shall be responsible for revising the block layout as necessary to address any differences in the SRW block dimensions.
5. The Contractor shall protect from damage, store and handle all materials in accordance with manufacturers recommendations and in a manner to prevent deterioration or damage due to moisture, temperature changes, Ultraviolet (UV) degradation, contaminants, corrosion, breaking, chipping or other causes. Damaged material shall not be incorporated into the segmental retaining wall.
6. Crushed rock leveling pad shall be placed on top of compacted subgrade. Leveling pad shall be placed and compacted to a minimum of 92% of maximum dry density per AASHTO T-180 (Modified Proctor). Leveling pad thickness shall be a minimum of 8 inches as measured in place. An acceptable alternative is a 5" concrete (3300 psi) base pad on compacted subgrade.
7. Maximum particle size for wall backfill shall not exceed 2 inches in diameter.
8. The plasticity index (PI) for the backfill material used in the reinforced wall backfill shall not exceed 30 and the liquid limit shall not exceed 40, as per ASTM D-4318. The owner does not guarantee that all site soils meet these criteria.
9. Backfill shall be placed and compacted in lifts not to exceed a loose depth thickness of 8 inches for hand operated vibratory equipment and 12 inches for walk behind, self-propelled vibratory equipment. Backfill shall be compacted to 92% of AASHTO T-180 compaction standard.
10. Drainage backfill behind wall and in voids of SRW units shall consist of 1"-0 crushed rock containing no more than 5% passing No. 200 sieve. Provide 4 oz minimum drainage fabric over drain rock (12" minimum lap at any joints).
11. Wall drainpipe shall be fabric covered (3 oz min) HDPE slotted pipe conforming to ASTM F-405 (ADS Sock or approved equivalent). Wall drain pipe shall be connected to solid-wall drain pipe(s) draining to daylight or to an approved storm drain system.
12. The overall tolerance for the constructed face of wall relative to the vertical wall design or batter shall not exceed ± 1.25 inches maximum over a 10 foot distance; 3 inches maximum.
13. The wall drainage system specified is intended to serve the Segmental Retaining Wall (SRW) in its final constructed condition in conjunction with the final site improvements in their final constructed condition. During construction, the Contractor shall manage site drainage and divert stormwater away from the wall structure as necessary to prevent overloading of wall drainage reinforced systems.
14. At the end of the each day's operation, the Contractor shall slope the last level of backfill away from the wall face to direct runoff of rainwater away from the wall face. In addition, the Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.
15. Inspection is required for construction of this segmental block retaining wall (SRW).
16. Contractor shall insure all inspections are performed prior to proceeding with the next phase of work. At a minimum inspections shall include the following items: Observation that the wall subgrade bearing capacity meets the specified soil bearing capacity, or a minimum of 2,000 psf, whichever is greater. Observations of the compacted crushed rock leveling pads and wall drainage system. Observation of the wall batter. Soil testing results for plasticity index and liquid limit values for wall backfill material. Compaction results for the wall backfill.



LAST REVISION DATE: AUG. 2020	JO #: STANDARD
SEGMENTAL RETAINING WALL W/ FENCE (NON-REINFORCED) (NTS)	
WESTECH ENG.	DETAIL NO. 8310A

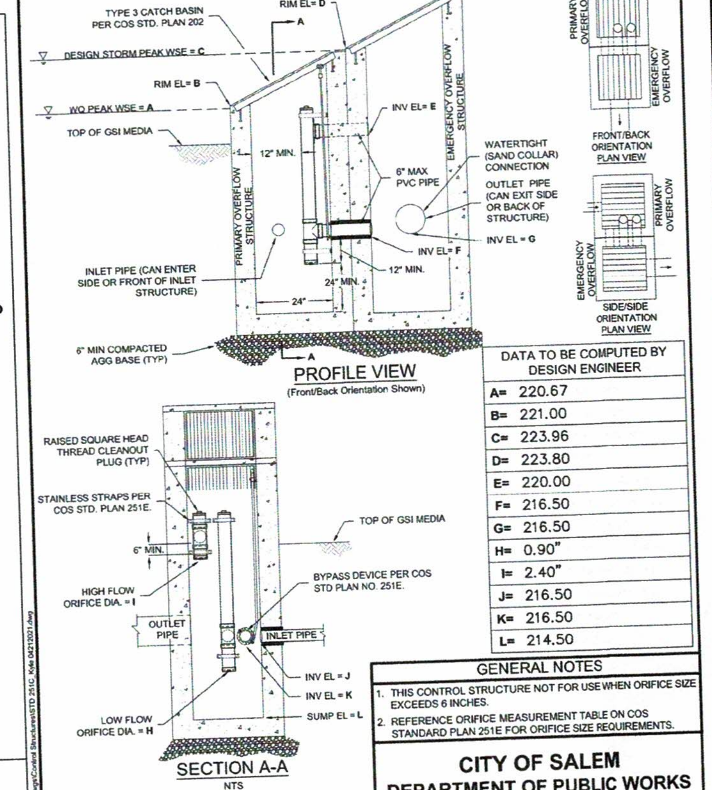


NOTES:
1. PRECAST SECTIONS SHALL CONFORM TO ASTM C-478.
2. ORIFICE CLEANING ACCESS TO BE 8" CORE HOLE THROUGH FLAT-TOP (CENTERED ON OVERFLOW) WITH CI CLEANOUT BOX GROUTED TO SLAB.

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
FLOW CONTROL MANHOLE

APPROVED [signature] — NO.251



DATA TO BE COMPUTED BY DESIGN ENGINEER
A= 220.67
B= 221.00
C= 223.96
D= 223.80
E= 220.00
F= 216.50
G= 216.50
H= 0.90"
I= 2.40"
J= 216.50
K= 216.50
L= 214.50

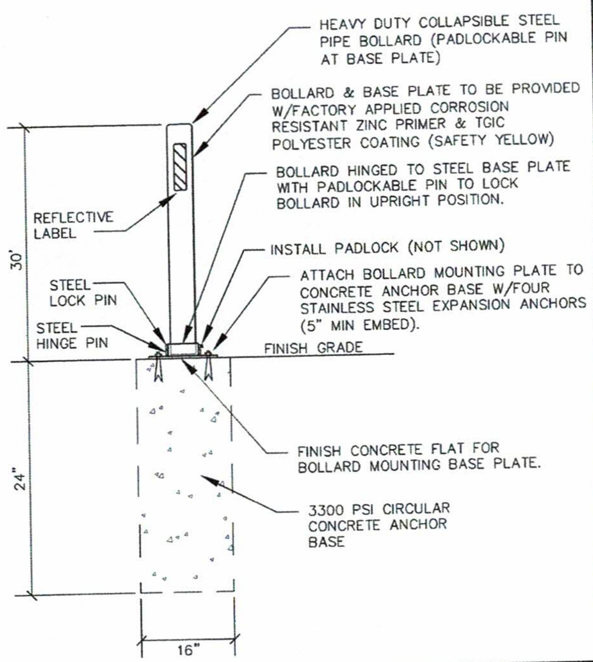
GENERAL NOTES
1. THIS CONTROL STRUCTURE NOT FOR USE WHEN ORIFICE SIZE EXCEEDS 6 INCHES.
2. REFERENCE ORIFICE MEASUREMENT TABLE ON COS STANDARD PLAN 251E FOR ORIFICE SIZE REQUIREMENTS.

CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN
FLOW CONTROL STRUCTURE-TYPE 3

APPROVED [signature] CITY ENGINEER — 6/8/2021 DATE — DRAWN BY KLA 4/2021 — CHECKED BY JDL 4/2021 — NO.251C

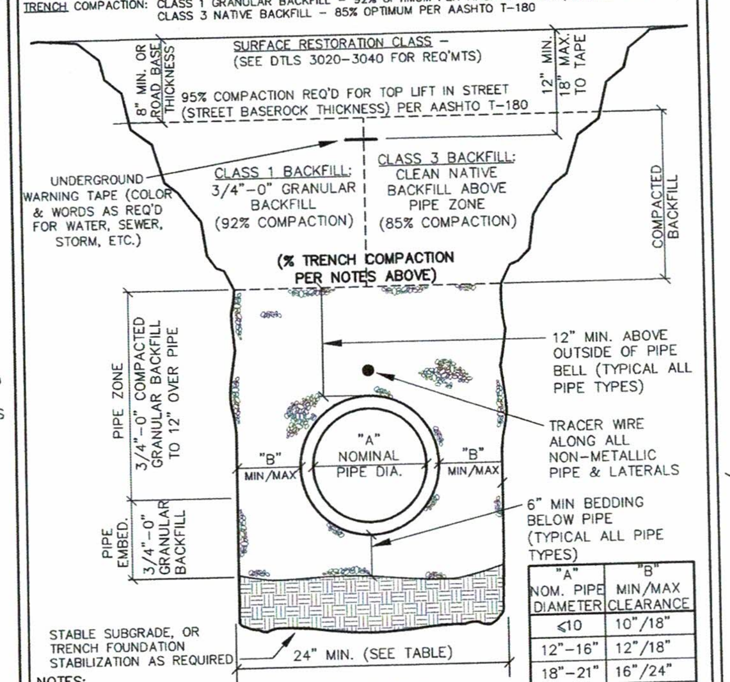
NOTE:
1. IF BOLLARDS ARE PLACED IN AC PAVEMENT OR CONCRETE AREAS, HOLES FOR THE CONCRETE ANCHOR BASE SHALL BE CORE DRILLED TO DIMENSIONS SHOWN.



NOTES:
1. BOLLARD BASE MOUNTING PLATE AND BOLLARD SHALL BE 4-INCH MAXIMUM HEIGHT WHEN IN COLLAPSED/DOWN POSITION.
2. UNLESS OTHERWISE SPECIFIED, PROVIDE WEATHER RESISTANT PADLOCK KEYED TO SPECIFIED PATTERN.
3. COLLAPSIBLE BOLLARD ASSEMBLY SHALL BE TRAFFICGUARD MODEL LPHDHB OR APPROVED EQUAL.
4. VERIFY BOLLARD HINGE LOCATION (IE. COLLAPSE DIRECTION) WITH OWNER PRIOR TO INSTALLATION.

LAST REVISION DATE: OCT 2019	JO #: STANDARD
30" TALL COLLAPSIBLE PADLOCKABLE BOLLARD (NTS)	
WESTECH ENG.	DETAIL NO. 2264

TRENCH COMPACTION: CLASS 1 GRANULAR BACKFILL – 92% OPTIMUM PER AASHTO T-180 (MODIFIED PROCTOR)
CLASS 3 NATIVE BACKFILL – 85% OPTIMUM PER AASHTO T-180

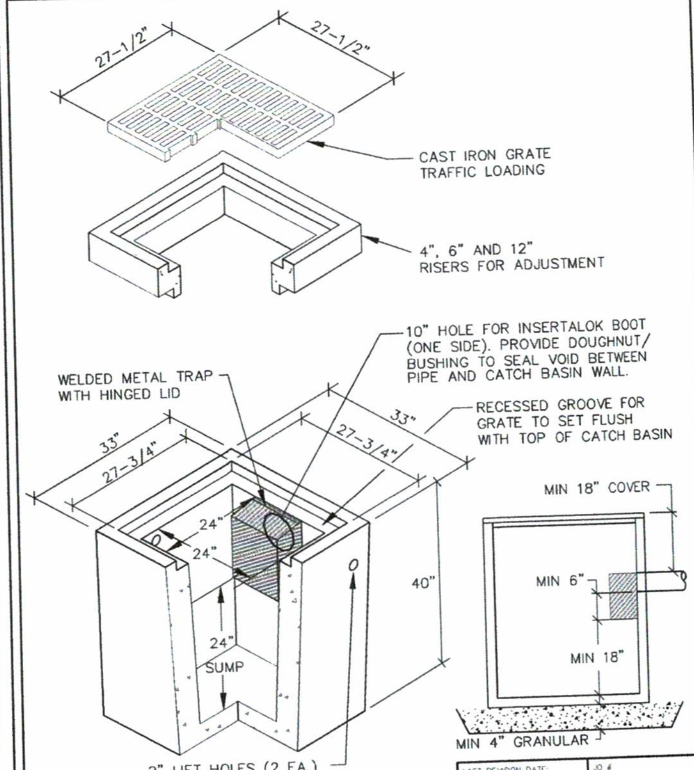


"A" NOM. PIPE DIAMETER	"B" MIN/MAX CLEARANCE
<10	10"/18"
12"-16"	12"/18"
18"-21"	16"/24"
24"-30"	18"/30"
>30"	24"/36"

(SEE NOTE 4)

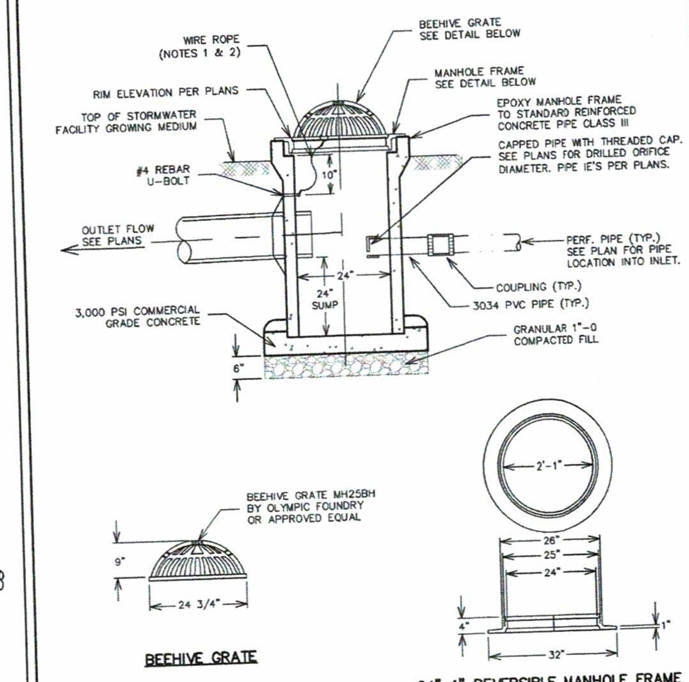
NOTES:
1. CLASS 1 REQ'D. UNDER ALL EXIST. OR FUTURE IMPROVED AREAS INCLUDING SIDEWALKS.
2. WHERE NEW PIPING IS IN SAME ALIGNMENT AS EXISTING PIPING, THE PIPE EMBEDMENT SHALL EXTEND TO A MIN. OF 6" BELOW THE NEW PIPING OR 6" BELOW EXISTING PIPING, WHICHEVER IS DEEPER.
3. FOR FLEXIBLE PIPE, BOTTOM OF TRENCH SHORING SHALL BE ABOVE PIPE SPRINGLINE PRIOR TO COMPACTING BACKFILL BELOW THE PIPE SPRINGLINE AND UNDER THE PIPE HAUNCHES.
4. MINIMUM CLEARANCES SHOWN ("B") ASSUMES STANDARD 6" WALL TRENCH BOXES SET ON TRENCH BOTTOM, AND REPRESENTS WIDTH REQUIRED TO CONSOLIDATE GRANULAR MATERIAL UNDER PIPE HAUNCHES (TO AVOID LOSS OF SIDE SUPPORT WHEN TRENCH BOX IS MOVED OR PULLED FORWARD). TRENCH WIDTH REDUCTION REQUIRES PRIOR APPROVAL BASED ON ACTUAL TRENCH SHORING PROPOSED.

LAST REVISION DATE: JAN 2016	JO #: STANDARD
TRENCH BACKFILL, BEDDING, AND PIPE ZONE (NTS)	
WESTECH ENG.	DETAIL NO. 3010



NOTES:
1. SEE CONSTRUCTION DRAWINGS FOR PIPE SIZE, LOCATION AND INVERT ELEVATION.
2. CONCRETE SHALL BE 4000 PSI @ 28 DAYS.
3. REBAR SHALL CONFORM TO ASTM A615 GRADE 60.
4. REBAR SHALL BE MIN. #4 BARS @ 6" C.C.
5. SET CB SQUARE WITH BUILDINGS OR WITH EDGE OF PARKING LOT OR DRIVEWAY WHEREIN IT LIES.
6. ADJUST PAVING SO WATER FLOWS TO CB WITH NO PONDING.

LAST REVISION DATE: JULY 2012	JO #: STANDARD
PARKING LOT CATCH BASIN (PRECAST CONCRETE) (NTS)	
WESTECH ENG.	DETAIL NO. 3150



NOTES:
1. SECURE GRATE IN PLACE WITH 54 INCHES OF WIRE ROPE. LOOP ENDS OF WIRE ROPE AROUND U-BOLT AND GRATE. CRIMP EACH END OF WIRE ROPE WITH 3" OVERLAP. WIRE ROPE TO BE 1/8" - 3/16" STAINLESS STEEL, 7 STRANDS OF 19 WIRES
2. DRILL 2" DEEP HOLES INTO PIPE AND EPOXY #4 REBAR U-BOLT (2" X 4") IN HOLES
3. GRATE TO BE CAST IRON, ASTM A48 CL30

LAST REVISION DATE: OCT. 2018	
FLOW CONTROL BEEHIVE INLET GRATE (NTS)	
WESTECH ENG.	DETAIL NO. U3132-B

7/20/2021 1:31:08 PM
R:\Dwg\WARD Property\Strong Heights Subdivision\Civil\Plots\D-1 Civil Details.dwg, (D-1 tab)

NO.	DATE	DESCRIPTION	BY
1			
		REVISIONS	

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

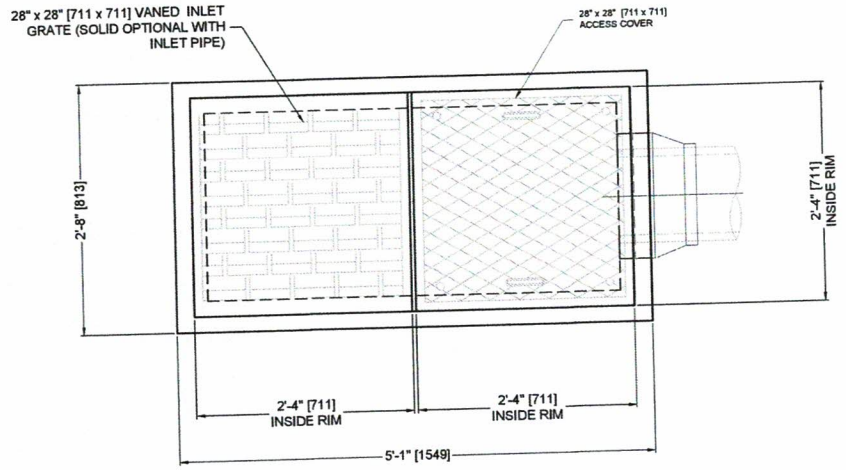
REGISTERED PROFESSIONAL ENGINEER 11843 OREGON JULY 16, 1982 STEVEN A. WARD
RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

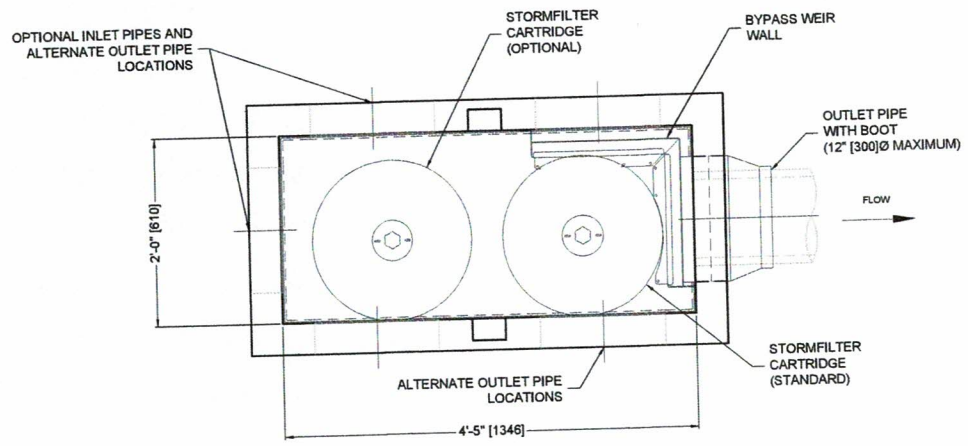
WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

CIVIL DETAILS

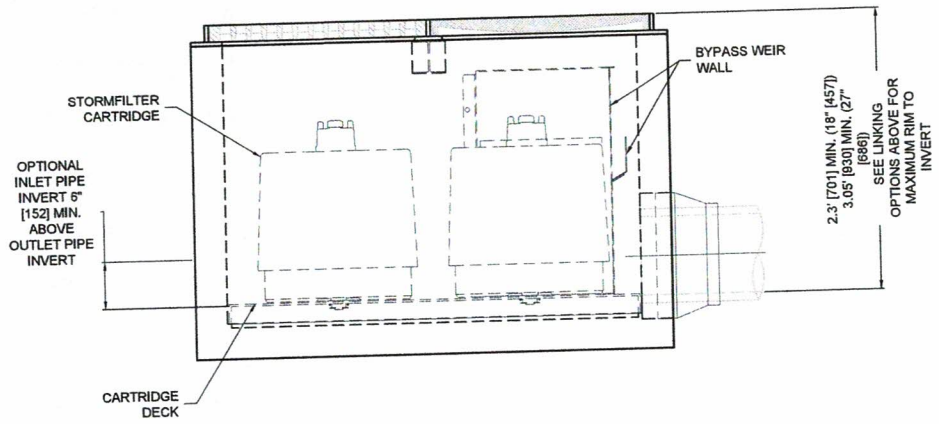
DRAWING
D-1
JOB NUMBER
2720.7000.0



PLAN VIEW



PLAN VIEW
CASTINGS NOT SHOWN



ELEVATION VIEW

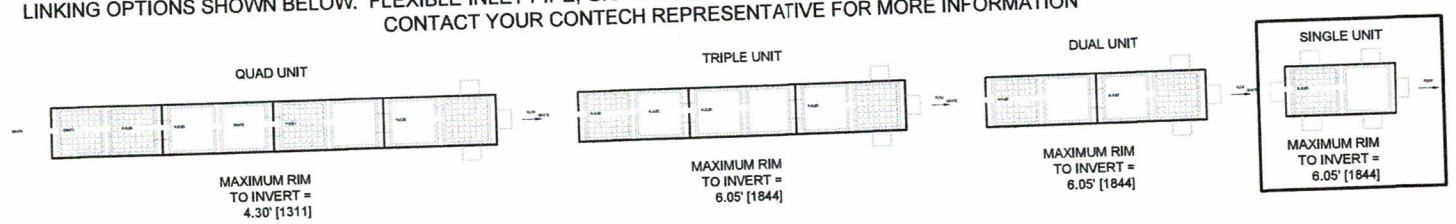
STORMFILTER DESIGN NOTES

- CONCRETE CATCHBASIN STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCAL APPROVALS
- PEAK CONVEYANCE CAPACITY IS 1.3 CFS
- CONCRETE CATCHBASIN STORMFILTER IS AVAILABLE WITH UP TO TWO (2), 18" [457] OR 27" [686] TALL CARTRIDGES
- UP TO 4 INDIVIDUAL UNITS MAY BE LINKED FOR AN ULTIMATE CAPACITY OF EIGHT (8) CARTRIDGES

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]		
ACTIVATION HEAD (ft. [mm])	3.05 [930]			2.3 [701]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m^2])	2 [1.36]			2 [1.36]		
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.4]			15 [0.95]		

* 1.67 gpm/sf [1.13 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY

LINKING OPTIONS SHOWN BELOW. FLEXIBLE INLET PIPE, GRATED AND SOLID COVER PLACEMENT. MAXIMUM HEIGHT FOR LINKED UNITS VARIES. CONTACT YOUR CONTECH REPRESENTATIVE FOR MORE INFORMATION



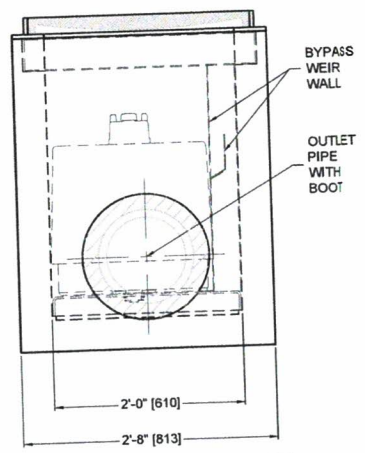
GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM [L/S]) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF [m^2]).
8. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 0'-2" [51] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
3. CONTRACTOR TO PROVIDE AND INSTALL PIPES. MATCH PIPE INVERTS SHOWN ON PROJECT SPECIFIC DRAWINGS.
4. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

FINISHED GRADE



RIGHT SIDE VIEW

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			0.02
PEAK FLOW RATE (cfs [L/s])			0.05
RETURN PERIOD OF PEAK FLOW (yrs)			100
CARTRIDGE SIZE (27, 18)			18
CARTRIDGE FLOW RATE			15 GPM
MEDIA TYPE (PERLITE, ZPG, PSORB)			ZPG
NUMBER OF CARTRIDGES REQUIRED			1
RIM ELEVATION			SEE PLANS
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	SEE PLANS		
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
0 1"
DSN. SAW
DRN. AR
CKD. SAW
DATE: FEB 2021

REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 15, 1983 — STEVEN A. WAGNER — 11847 — RENEWS: 6/30/2022

WESTECH ENGINEERING, INC.
CONSULTING ENGINEERS AND PLANNERS
3841 Fairview Industrial Dr. S.E., Suite 100, Salem, OR 97302
Phone: (503) 585-2474 Fax: (503) 585-3986
E-mail: westech@westech-eng.com

WARD DEVELOPMENT, LLC
STRONG HEIGHTS SUBDIVISION

CIVIL DETAILS

DRAWING
D-2

JOB NUMBER
2720.7000.0