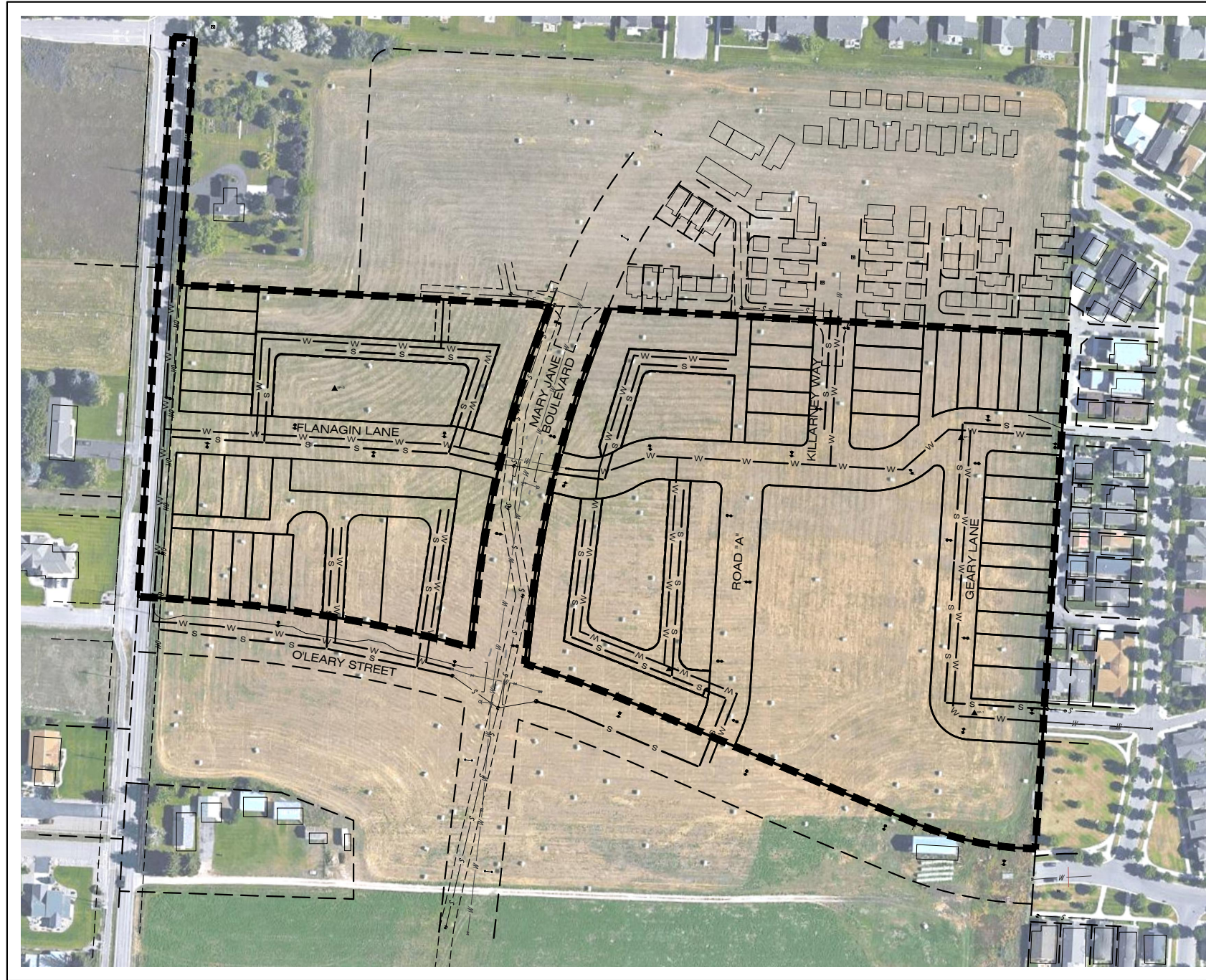
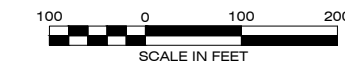


# UTILITY CONSTRUCTION PLANS

MISSOULA LOFT HOMES ON MARY JANE  
 LOCATED IN SECTION 18, T13N, R19W, P.M.M., MISSOULA COUNTY, MONTANA



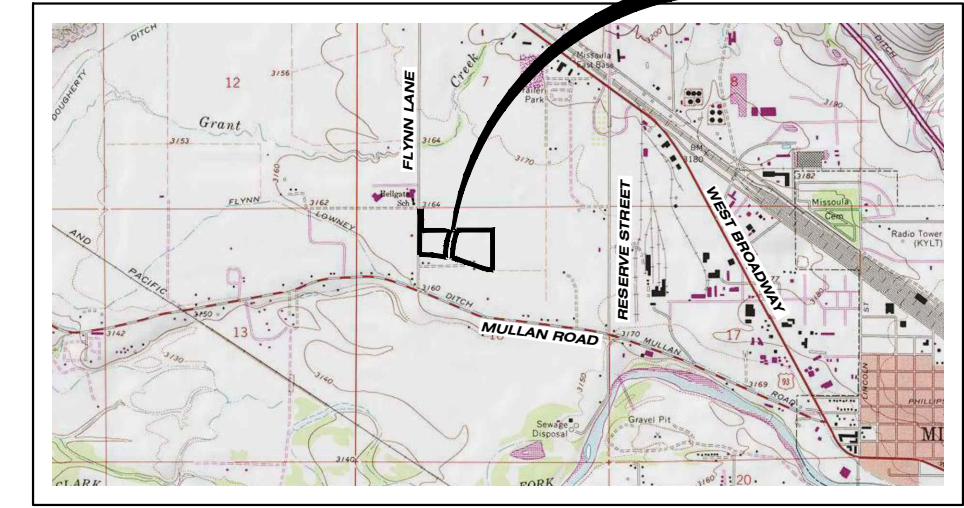
CALL UTILITY NOTIFICATION  
 CENTER OF MONTANA  
**1-800-424-5555**  
 CALL FOR THE MARKING OF  
 UNDERGROUND UTILITIES  
**2 BUSINESS DAYS BEFORE**  
 YOU DIG, GRADE, OR EXCAVATE



## SHEET INDEX

DESCRIPTION	SHEET NO.
LEGENDS AND NOTES	SHEET 2 OF 25
INDEX SHEET	SHEET 3 OF 25
PLAN & PROFILE SHEETS - SEWER - FLANAGIN WEST	SHEET 4 OF 25
PLAN & PROFILE SHEETS - SEWER - NORTH OF FLANAGIN WEST - EAST	SHEET 5 OF 25
PLAN & PROFILE SHEETS - SEWER - NORTH OF FLANAGIN WEST - WEST	SHEET 5 OF 25
PLAN & PROFILE SHEETS - SEWER - O'LEARY WEST	SHEET 6 OF 25
PLAN & PROFILE SHEETS - SEWER - NORTH OF O'LEARY WEST - EAST	SHEET 7 OF 25
PLAN & PROFILE SHEETS - SEWER - NORTH OF O'LEARY WEST - WEST	SHEET 7 OF 25
PLAN & PROFILE SHEETS - SEWER - FLANAGIN EAST / NORTH OF FLANAGIN EAST	SHEET 8 OF 25
PLAN & PROFILE SHEETS - SEWER - KILLARNEY	SHEET 9 OF 25
PLAN & PROFILE SHEETS - SEWER - GEARY	SHEET 10-11 OF 25
PLAN & PROFILE SHEETS - SEWER - O'LEARY EAST	SHEET 12-13 OF 25
PLAN & PROFILE SHEETS - SEWER - NORTH OF O'LEARY EAST	SHEET 13 OF 25
PLAN & PROFILE SHEETS - WATER - FLANAGIN WEST	SHEET 14 OF 25
PLAN & PROFILE SHEETS - WATER - O'LEARY WEST	SHEET 15 OF 25
PLAN & PROFILE SHEETS - WATER - FLYNN	SHEET 16 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF FLANAGIN WEST - MOVING WEST	SHEET 17 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF FLANAGIN WEST - MOVING NORTH	SHEET 17 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF FLANAGIN WEST - WEST	SHEET 18 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF O'LEARY WEST - WEST	SHEET 19 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF O'LEARY WEST - EAST	SHEET 19 OF 25
PLAN & PROFILE SHEETS - WATER - FLANAGIN EAST	SHEET 20-21 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF FLANAGIN EAST	SHEET 22 OF 25
PLAN & PROFILE SHEETS - WATER - KILLARNEY	SHEET 22 OF 25
PLAN & PROFILE SHEETS - WATER - NORTH OF O'LEARY EAST TO FLANAGIN EAST	SHEET 23 OF 25
PLAN & PROFILE SHEETS - WATER - SOUTH OF O'LEARY EAST - NORTH TO WEST	SHEET 24 OF 25
PLAN & PROFILE SHEETS - WATER - GEARY LANE	SHEET 25 OF 25
DETAIL SHEET	SHEET D1 OF D3
DETAIL SHEET	SHEET D2 OF D3
DETAIL SHEET	SHEET D3 OF D3

## VICINITY MAP




MISSOULA, MISSOULA COUNTY



PROJECT STATUS		
THESE PLANS REQUIRE, AT A MINIMUM, APPROVAL FROM THE AGENCIES LISTED BELOW. THEREFORE, THE OWNER & CONTRACTOR ARE ADVISED THAT BIDS & CONTRACTS SHOULD NOT BE FINALIZED UNTIL INDICATED BELOW.		
AGENCIES REVIEW STATUS:	REFERENCE #	APPROVAL DATE
CITY OF MISSOULA DEV. SERVICES		
MONTANA DEPT. OF ENV. QUALITY	EQ#:	
<b>PLAN SET IS READY FOR CONSTRUCTION</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
AS-BUILT DATE: PROJECT HAS BEEN CONSTRUCTED IN GENERAL CONFORMANCE WITH THE ABOVE APPROVALS, STATED SPECIFICATIONS, AND SHOWN HERE IN, UNLESS OTHERWISE SPECIFIED.		
<b>PROJECT NOTES: MISSOULA CITY PUBLIC WORKS STANDARDS &amp; SPECIFICATIONS (MCPWSS) EDITION JAN. 2023</b>		
DEVELOPER:		

CITY OF MISSOULA CHECKLIST DATA	
LINEAR FOOTAGE OF SEWER GRAVITY MAINS ESTIMATED FOR CONSTRUCTION	
LINEAR FOOTAGE OF SEWER FORCE MAINS ESTIMATED FOR CONSTRUCTION	
NUMBER OF PROPOSED SEWER STUBS TO BE CONSTRUCTED	
LINEAR FOOTAGE OF WATER MAINS ESTIMATED FOR CONSTRUCTION	
NUMBER OF PROPOSED WATER STUBS TO BE CONSTRUCTED	
GENERAL NOTES:	
1. TEMPORARY AIR RELIEFS: DEPENDING ON THE SEQUENCING OF CONSTRUCTION AS DETERMINED BY THE CONTRACTOR AND CITY OF MISSOULA, TEMPORARY AIR RELIEFS PER STD-410 WILL LIKELY BE REQUIRED TO PURGE THE SYSTEM OF AIR FOR TESTING PURPOSES. ONCE TESTING IS COMPLETED, TEMPORARY AIR RELIEFS SHALL BE REMOVED/ABANDONED. CONTRACTOR IS REQUIRED TO PROVIDE THEIR PROPOSED CONSTRUCTION SEQUENCING AND CONFIRM WITH ENGINEER AND CITY OF MISSOULA / MISSOULA WATER WHERE TEMPORARY AIR RELIEFS ARE PROPOSED OR ARE NEEDED PRIOR TO TESTING DIFFERENT SECTIONS OF NEW WATER MAIN. THIS IS TYPICAL THROUGHOUT THE PROJECT.	
2. VALVE RESTRAINED JOINT NOTE: RESTRAIN JOINTS WITHIN 36 FEET OF VALVE WITH MEGALUGS, FIELD-LOK GASKETS, OR APPROVED EQUIVALENT (APPLIES TO ALL VALVES) PER STD-405.	
3. BLOWOFF RESTRAINED JOINT NOTE: NO UNRESTRAINED JOINTS WITHIN 36 FEET OF BLOWOFF (APPLIES TO ALL BLOWOFFS) PER STD-409.	



1817 SOUTH AVE. W. STE. A PH: 406.721.0142  
 MISSOULA, MT FAX: 406.721.5224  
 www.imegcorp.com 59801

DATE: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

DESIGNED: AJM

DRAFTED: LTM

CHECKED: AJM

DATE: APR. 2023

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P.M.M.  
 MISSOULA COUNTY

PREPARED FOR: **MIRAMONTE**

PROJECT NAME: **MISSOULA LOFT HOMES ON MARY JANE**

SHEET TITLE: **UTILITY CONSTRUCTION PLANS COVER SHEET**

PROJECT NO.: 22000700.01

SHEET: 1 OF 25

STAGE 2

DRAWING LOCATION: G:\2022\22000700.01\DRAWING\CONV\CD\PROJECT\DRAWING\WTR\22000700.01.DWG

PLOT DATE: 4/6/2023 2:08 PM

**LEGEND**

NOTE: ALL FEATURES SHOWN IN LEGEND MIGHT NOT BE PRESENT ON PLANS  
ALL FEATURES SHOWN ON PLANS MIGHT NOT BE PRESENT IN LEGEND

EXISTING	PROPOSED
	(P) PROPERTY LINE
	(P) EASEMENT
	(P) WATER LINE
	(P) WATER SERVICE
	(P) SEWER LINE
	(P) SEWER SERVICE
	(P) SEWER FORCE MAIN
	(P) SEWER FORCE MAIN SERVICE
	(P) STORM DRAIN PIPE
	(P) OVERHEAD UTILITY
	(P) GAS LINE
	(P) TELEPHONE LINE
	(P) TELEVISION LINE
	(P) FIBER OPTIC LINE
	(P) ROAD CENTERLINE
	(P) FENCE LINE
	(P) DITCH
	(P) SWALE
	(P) IRRIGATION DITCH
	(P) IRRIGATION FORCE MAIN
	(P) STREAM
	(P) MAJOR CONTOUR
	(P) MINOR CONTOUR
	(P) ASPHALT
	(P) GRAVEL
	(P) CONCRETE
	(P) SEWER MANHOLE
	(P) SEWER CLEANOUT
	(P) SOIL PROFILE
	(P) PERCOLATION TEST
	(P) GROUNDWATER MONITORING
	(P) SEPTIC TANK
	(P) DRAINFIELD
	(P) WELL
	(P) FIRE HYDRANT
	(P) WATER METER
	(P) WATER VALVE
	(P) REDUCER
	(P) THRUST BLOCK
	(P) WATER BLOW-OFF
	(P) STORM DRAIN MANHOLE
	(P) CURB INLET
	(P) CURB INLET
	(P) CATCH BASIN
	(P) SUMP
	(P) UTILITY MANHOLE
	(P) LIGHT POLE
	(P) SIGN
	(P) MAILBOX
	(P) DECIDUOUS TREE
	(P) CONIFEROUS TREE
	(P) BUSH/ SHRUB

**SYMBOLS**

	DETAIL DESIGNATOR	DETAIL SECTION
	SHEET DESIGNATOR	DETAIL CALLOUT
	SHEET DESIGNATOR	KEYED NOTE CALLOUT
	PROPOSED ELEVATION	SPOT ELEVATION CALLOUT
	EXISTING ELEVATION	
	+X.X%	SLOPE GRADE
		FLOW DIRECTION

**ABBREVIATIONS**

(E)	EXISTING
ELEV	ELEVATION
EOA	EDGE OF ASPHALT
FG	FINISHED GRADE
FL	FLOWLINE
INV	INVERT
LF	LINEAR FOOT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
(P)	PROPOSED
PC	POINT OF CURVATURE
PT	POINT OF TANGENT
SIM	SIMILAR
STA	STATION
TBC	TOP BACK OF CURB
TOC	TOP OF CONCRETE
TYP	TYPICAL

**GENERAL CONDITIONS OF CONSTRUCTION:**

- The Standard General Conditions of the Contract prepared by the Engineers Joint Contract Documents Committee (Copyright 2007), as included in Montana Public Works Standard Specifications, are herein referred to as the General Conditions within these Drawings. Copies of the General Conditions will be provided to Contractor upon written request to Engineer.
- Wherever used in these Drawings, the terms, whether printed with initial capital letters or not, as listed in the Standard General Conditions of the Construction Contract (General Conditions), Article 1 - Definitions and Terminology, prepared by the Engineers Joint Contract Documents Committee (Copyright 2007) will have the meanings indicated, which are applicable to both the singular and plural thereof, except as follows:
  - The Contract Documents shall mean the Drawings as shown in these plans and any applicable referenced standards, specifications, or laws.
  - The Contract Price shall mean the moneys payable by Owner to Contractor for completion of the Work in accordance with the Agreement.
  - The Contract Times shall mean the number of days or the dates stated in the Agreement to complete the Work so that it is ready for final payment. If no such dates are established, the Contract Time shall be 120 days to complete the Work.
  - Effective Date of the Agreement shall have the meaning as listed in the General Conditions, Article 1. If no such Agreement exists, the Effective Date of the Agreement shall be the day the Contractor proceeds with the Work.
- By proceeding with the Work as shown on these Drawings, the Contractor makes the following representations:
  - Contractor has examined and carefully studied the Drawings and other related data.
  - Contractor is familiar with and is satisfied as to all federal, state and local laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
  - Contractor has visited the site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, performance or furnishing of the Work.
  - Contractor acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Drawings with respect to Underground Facilities at or contiguous to the site.
  - Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor including applying the specific means, methods, techniques, sequences and procedures of construction, if any, expressly required by the Drawings to be employed by the Contractor, and safety precautions and programs incident thereto.
  - Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work.
  - Contractor has given Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Drawings and the written resolution thereof by Engineer is acceptable to Contractor.
  - The Drawings are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- In resolving disputes resulting from conflicts, errors or discrepancies, the order of precedence shall be as follows, as applicable to this project: Written agreement between owner and contractor, specifications, Drawings. Within the Specifications, the order of precedence is as follows, as applicable to this project: Addenda/Change Orders, Contractor's Bid, Special Provisions, Instructions to Bidders, Supplemental General Conditions, Notice Inviting Bids, General Conditions, Technical Specifications, Referenced Standard Specifications. With reference to the Drawings, the order of precedence is as follows, as applicable to this project: Figures govern over scaled dimensions, Detail drawings govern over general drawings, Addenda/Change Order drawings govern over contract drawings, contract drawings govern over standard drawings, contract drawings govern over shop drawings.
- If Contractor believes that any subsurface or physical condition at or contiguous to the Site that
  - is uncovered or revealed either is of such a nature as to require a change in the Drawings; or
  - differs materially from that shown or indicated in the Drawings; or
  - is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided in the drawings;
 then Contractor shall promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.
- Section 2.06 of the General Conditions is hereby incorporated into these Drawings.
- Section 3.03.A.2 of the General Conditions is hereby incorporated into these Drawings.
- Section 3.05 of the General Conditions is hereby incorporated into these Drawings.
- Section 3.06 of the General Conditions is hereby incorporated into these Drawings.
- Section 4.05 of the General Conditions is hereby incorporated into these Drawings.
- Section 6.01, 6.02.A, and 6.03 of the General Conditions are hereby incorporated into these Drawings.
- Substitutes and "Or-Equals" items are subject to the provisions of the General Conditions, Section 6.05.
- Section 6.13 of the General Conditions is hereby incorporated into these Drawings, except that Section 6.13.D shall be replaced with the following sentence:  
Contractor's duties and responsibility for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer and Owner, as applicable to the Work, have accepted that the work is complete.
- Section 6.11, 6.14, 6.15, 6.16, 6.18, 6.19, 6.20, and 6.21 of the General Conditions are hereby incorporated into these Drawings.
- Article 9 - Engineer's Status During Construction of the General Conditions is hereby incorporated into these Drawings, except as follows:
  - Delete the last sentence of Section 9.05.A.
  - Delete Section 9.06, 9.07, 9.08.B, 9.08.C, and 9.09.D.
- Section 10.02 of the General Conditions is hereby incorporated into these Drawings.
- Article 13 - Tests and Inspections, Correction, Removal or Acceptance of Defective Work of the General Conditions is hereby incorporated into these Drawings.

**STANDARD SPECIAL PROVISIONS:**

- The Contractor shall be responsible for all permits, licenses and fees required for completion of this project unless specifically noted otherwise.
- The Contractor shall provide the Owner with a 24 hour phone number of a party responsible and capable of immediate local response to emergency maintenance for the duration of the Work. Contractor shall provide the name of the responsible party and phone number in writing prior to proceeding with the Work.
- Unless noted otherwise, the contractor shall be responsible for any necessary traffic control on and off-site including obtaining any applicable permits.
- Material stockpiled along the project route shall be done so in a manner that does not affect public safety and is in a neat and orderly fashion.
- The Contractor shall be responsible for disposing of all waste and excess materials such as, but not limited to: vegetation, trees, brush, asphalt, concrete, sub-grade soils, etc., offsite in accordance with local, state and federal laws. The Owner reserves the right to request certain waste materials to be stockpiled at a location on-site.
- The contractor will be responsible to adhere to the MDEQ or EPA approved Storm Water Pollution Prevention Plan (SWPPP), if applicable to the project. The contractor is responsible for repairing any damage made to BMPs identified in the SWPPP. The approved Storm Water Pollution Prevention Plan will be provided by Owner to Contractor upon written request. If a SWPPP has not been prepared for the project, but is required by regulation, the Contractor is responsible for preparing and submitting a Notice of Intent and SWPPP.
- The Contractor will be required to make every effort to immediately restore the construction area once the construction task is completed. All seeding shall be completed in accordance with MPWSS 02910. This includes such required activities as finish grading, spreading of topsoil, restoring irrigation, replacing traffic and street signs, etc. The contractor will have 48 hours to begin restoration once the construction task in the immediate area is complete. Once restoration is begun, it must be completed without interruption to the extent possible.
- After all work on this project is completed and before final acceptance of the project, the entire project shall be neatly finished to the lines, grades, and cross sections shown on the plans and as hereinafter specified.
  - Drainage facilities, such as inlets, catch basins, storm pipe, culverts, and curb and gutter shall be cleaned of all debris, gravel, silts or other foreign material.
  - The Contractor shall remove and dispose of all construction stakes.
  - All areas disturbed by the construction shall be shaped to present a uniform appearance blending into the contour of adjacent properties. All surface replacement and landscaping shall be completed.
  - Except as otherwise permitted, all excess excavated materials shall be disposed of away from the site of the work.
  - Broken concrete and other debris resulting from pavement or sidewalk removal, excavated rock in excess of the amount permitted, and other waste and debris encountered in excavated work, and other similar waste materials shall be disposed of away from the site.
 There will be no separate measurement or payment for cleanup, and all costs for such work shall be included in the Contract Price.
- No on-site burning of waste materials will be allowed.
- If a street has not been surfaced and cleaned, the Contractor shall be responsible for dust control and maintenance of the street. Also, if detours are made on a gravel road, the Contractor is responsible for dust control and maintenance on the detours. See "Air Quality" below also.
- Daily street sweeping shall be completed on both ends of each street during construction. Unpaved detours or any other fugitive dust emission sources from construction and demolition shall be watered and/or chemically stabilized so emissions are less than 20% opacity.

**UTILITY NOTES:**

- The Contractor shall notify appropriate personnel for utility locations and notice of construction commencement at least two business days prior to proceeding with the Work. Before Contractor proceeds with the Work, a common locate service (One Call) is available at 1-800-424-5555. All Underground Facilities may not be located by the One Call service including but not limited to such Underground Facilities as irrigation systems, public and private water and sewer systems, etc.
- The Contractor shall support and protect all exposed utilities in conformance with the utility owner's standards.
- The information and data shown or indicated in the Drawings with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise noted:
  - Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and
  - The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - Reviewing and checking all such information and data,
    - Locating all Underground Facilities shown or indicated in the Drawings,
    - Coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
    - The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- At least 2 business days before beginning any excavation, the Contractor shall, according to MCA 69-4-501, notify all owners of underground facilities and coordinate the Work with the owners of such underground facilities. The information shown or indicated in the Drawings with respect to existing underground facilities is based on information and data obtained from the owners of the facilities without field exploration, and as such, Owner and Engineer are not responsible for the accuracy or completeness of such information or data.

**SUBMITTALS, QUALITY CONTROL & ASSURANCE, INSPECTIONS, AND TESTING**

- Contractor is responsible to comply with the Contractor Quality Control and Owner Quality Assurance, Section 01400 MPWSS.
- Contractor shall complete trench excavation and backfill in accordance with Section 02221 MPWSS.
- The Contractor shall coordinate with Engineer to obtain samples of trench backfill material to be used on-site.
- Contractor will be responsible for coordination with a material testing company of the Engineer's selection to complete compaction testing of trench backfill. Coordination includes updating appropriate personnel of the material testing company every day as to progress of work so adequate testing can be completed.
- As-Builts:** The Contractor will be required to prepare a set of detailed as-built drawings to be presented to the Engineer at the completion of the project. The as-built drawings shall be updated daily and reviewed weekly by the Project Engineer. As-built drawings shall include, but not limited to location/depths of wet utility (water, sewer, storm, etc.) mains and services, all other utilities, culverts, drainage structures, etc.
- Service Ditch Cards:** Contractor will be responsible for completing service ditch cards for all services (water, sewer, storm, etc.). Information on the ditch cards must be provided as directed by Engineer including lot number or building address served; as-built service connection location on the main relative to stationing on the Drawings; Contractor who made tap; date tap was made; distance from main to curb stop/fittings/appurtenances/etc.; size of tap on main; size and material of service; size and material of main that was connected to; depth of main at tap; location and type of bends along service line; location and depth of cleanouts; depth of service at curb stop. Engineer will provide Contractor with example ditch cards upon written request, but shall conform to public entity's template(s). One ditch card shall be completed for each service.
- Sewer Main Testing:** Sanitary sewer testing shall be completed in the presence of the Engineer. The contractor is responsible for coordinating with the Engineer to be present for sewer testing. Sanitary sewer testing shall include:
  - leakage test using water or air test,
  - deflection test,
  - vacuum test of manholes,
  - television inspection, and
  - lamp test.
- Sewer TV Testing:** Television inspection shall be performed in accordance with MPWSS Section 02730. A device of known dimensions shall be drug along the bottom of the sewer pipe in front of the camera to provide a continuous visual reference of the depth of water ponds in the sewer pipe. The device shall be drug no more than four feet in front of the camera
- Sewer Manholes Testing:** Test manholes in accordance with ASTM C1244-93. Test method for concrete sewer manholes by the negative air pressure (vacuum) test. Vacuum test shall be completed by pulling a vacuum of 10" Hg (4.9 psi) and measuring the time it takes to drop to 9" Hg (4.4 psi). Test shall be completed on concrete surface and not on iron ring. The minimum acceptable time for an 8" or less deep manhole shall be 20 seconds. Five seconds shall be added to the minimum acceptable time for every two feet in depth beyond 8'.
- Water Main Testing:** Water testing shall be completed in the presence of the Engineer. The Contractor is responsible for coordinating with the Engineer to be present for water testing. Testing, cleaning, and disinfection of water mains, valves, and fittings shall be completed in accordance with MPWSS Section 02660, Part 3.4. Water testing procedure shall be as follows:
  - Chlorination
  - Flushing to reduce Chlorine residual to 0.5 ppm or less, or as otherwise approved by the engineer
  - Bacteriological Test
  - Hydrostatic and leakage testing
- All infrastructure specifications and testing requirements shall be per Missoula City Public Works Standards & Specifications.

**SEWER CONSTRUCTION NOTES:**

- All Work shall be in accordance with the Montana Public Works Standard Specifications (MPWSS) (Sixth Edition, dated April 2010) and Missoula City Public Works Standards & Specifications (MCPWSS) (edition labeled on cover sheet of plans). Sanitary Sewer Work shall conform to Section 02600 and any referenced specifications.
- Invert elevations are provided from center of manhole, unless noted otherwise.
- Manhole stations are provided from center of manhole, unless noted otherwise.
- Sewer services shall be constructed and inspected per Uniform Plumbing Code, City of Missoula, Missoula City-County Environmental Health Department, and Montana Department of Environmental Quality (MDEQ) regulations and standards.

**WATER CONSTRUCTION NOTES**

- All Work shall be in accordance with the Montana Public Works Standard Specifications (MPWSS) (Sixth Edition, dated April 2010) and Missoula City Public Works Standards & Specifications (MCPWSS) (edition labeled on cover sheet of plans). Water Work shall conform to Section 02600 and any referenced specifications.
- Stations are provided from center of bend, tee, or connection, unless noted otherwise.
- Water services shall be constructed and inspected per Uniform Plumbing Code, City of Missoula Public Works, and Missoula Water.
- Water services (new or swaps/replacements) shall only be completed after water main has been installed, completed, tested and certified by Missoula Water, City of Missoula, and the Engineer of Record.

**CONSTRUCTION STAKING**

- The owner will provide construction staking one time. Additional staking will be the responsibility of the contractor for scheduling and payment.
- Contractor is responsible to coordinate and request staking at least two days in advance, unless otherwise agreed upon in writing by Engineer.
- Staking will be provided as follows:
  - Bends, Tees/Connections, and Hydrants: Center of structure and two offset stakes.
  - Water Main: Hub offset set at 25' stations. Offset distance and side of trench as requested by Contractor in writing to engineer.
- Cut sheets will be provided to the contractor with elevation from hub to top of pipe elevation.
- Engineer does not consider staking to be complete and ready for use until cut sheets have been delivered to Contractor.

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

- SWPPP Administrator shall turn in SWPPP reports generated from the beginning of construction to date that As-Builts are turned into Engineer. Engineer in turn submits SWPPP reports to City Engineering as part of As-Built documentation.
- SWPPP Administrator is required to renew City SWPPP permit annually unless the site has been stabilized. SWPPP Administrator will submit any remaining SWPPP reports to City Engineering when filing for Notice of Termination.



DATE	REVISIONS

DESIGNED: *AJM*  
DRAFTED: *LTM*  
CHECKED: *AJM*  
DATE: *APR 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COOS 6817  
MARY JANE BOULEVARD  
SEC 16, T13, R19W, P. M. M.  
MISSOULA COUNTY, MONTANA

PROJECT NAME: MISSOULA LOFT HOMES  
ON MARY JANE

SHEET TITLE: UTILITY CONSTRUCTION PLANS  
LEGEND AND NOTES SHEET

PROJECT NO. 22000700.01  
SHEET: 2 OF 25

**STAGE 2**



SEWER ALIGNMENTS

WAT

# TBBD

NTS

**STAGE 2**

PROJECT NO.  
22000700.01

PROJECT NAME  
MISSOULA LOFT HOMES  
ON MARY JANE

LOCATION:  
TRACT 5 AND TRACT 2 OF COS 6817  
MARY JANE BOULEVARD  
SEC 18, T13, R19W, P. M. M.  
MISSOULA COUNTY

REVISIONS

NO.	DATE	DESCRIPTION

DESIGNED: *AJM*  
DRAFTED: *LTM*  
CHECKED: *AJM*  
DATE: *APR. 2023*

PREPARED FOR:  
MIRAMONTE

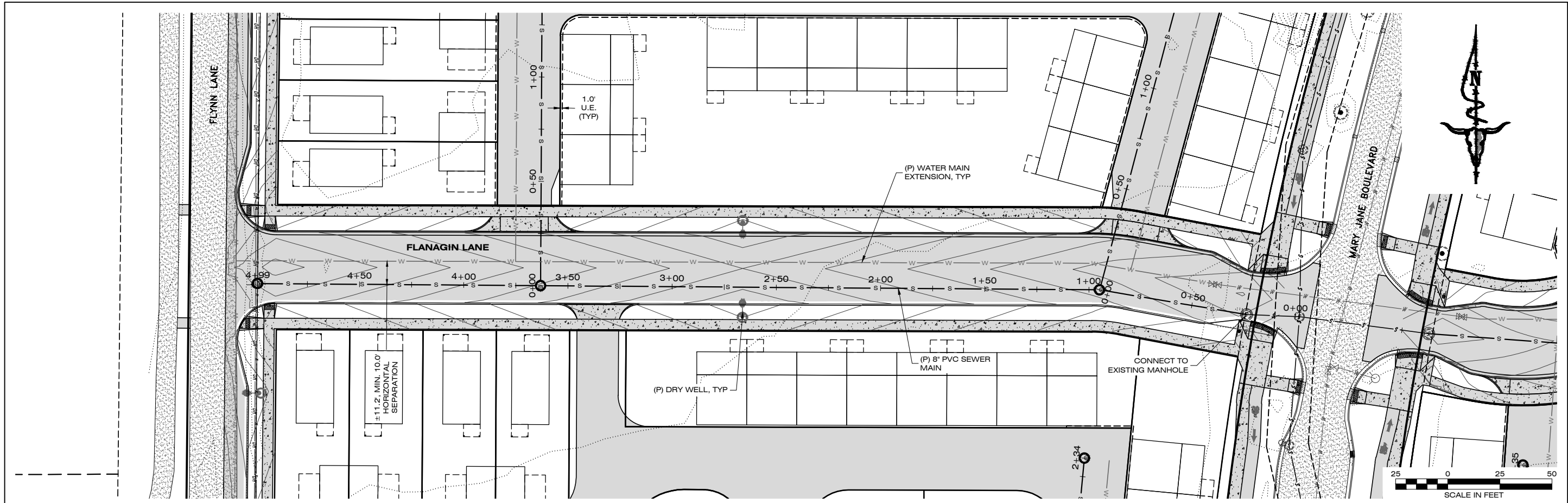
SHEET TITLE:  
UTILITY CONSTRUCTION PLANS  
INDEX SHEET

SHEET:  
3 OF 25

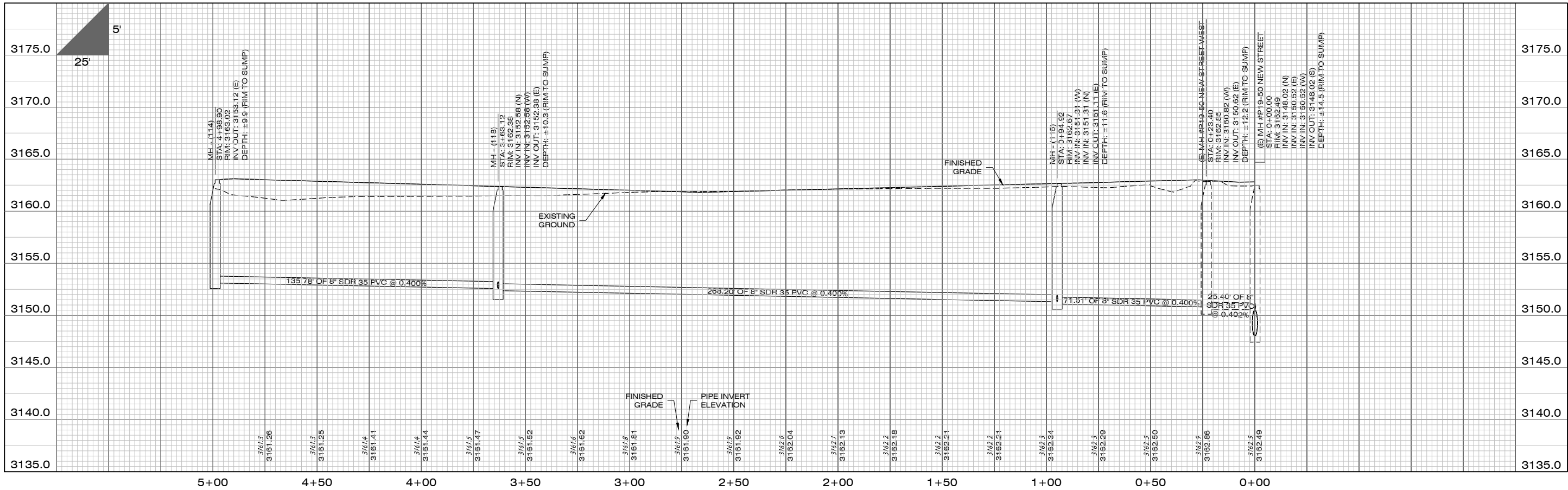
1817 SOUTH AVE. W. STE. A PH: 406.721.0142  
MISSOULA, MT FAX: 406.721.5224  
www.imegcorp.com 59801

DWG LOCATION: G:\2022\22000700.01\DESIGN\CONSTRUCTION\PLANS\WAT\WTR-22000700.01.DWG

PLOT DATE: 4/6/2023 2:08 PM



PLAN VIEW



PROFILE VIEW

DATE	
REVISIONS	

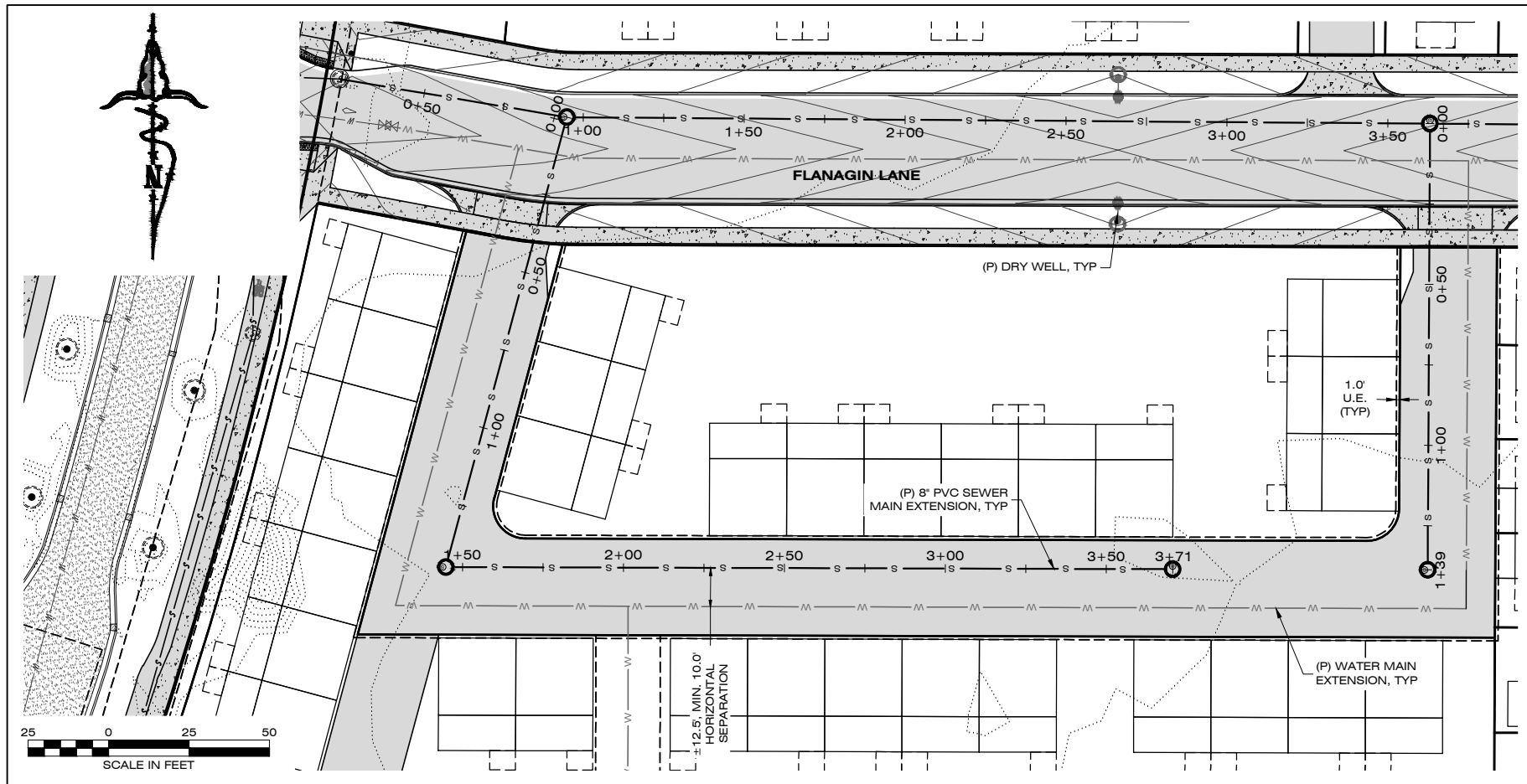
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 DRAFTED: *LTM*  
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 DATE: *APR. 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY, MONTANA  
 PREPARED FOR: MIRAMONTE

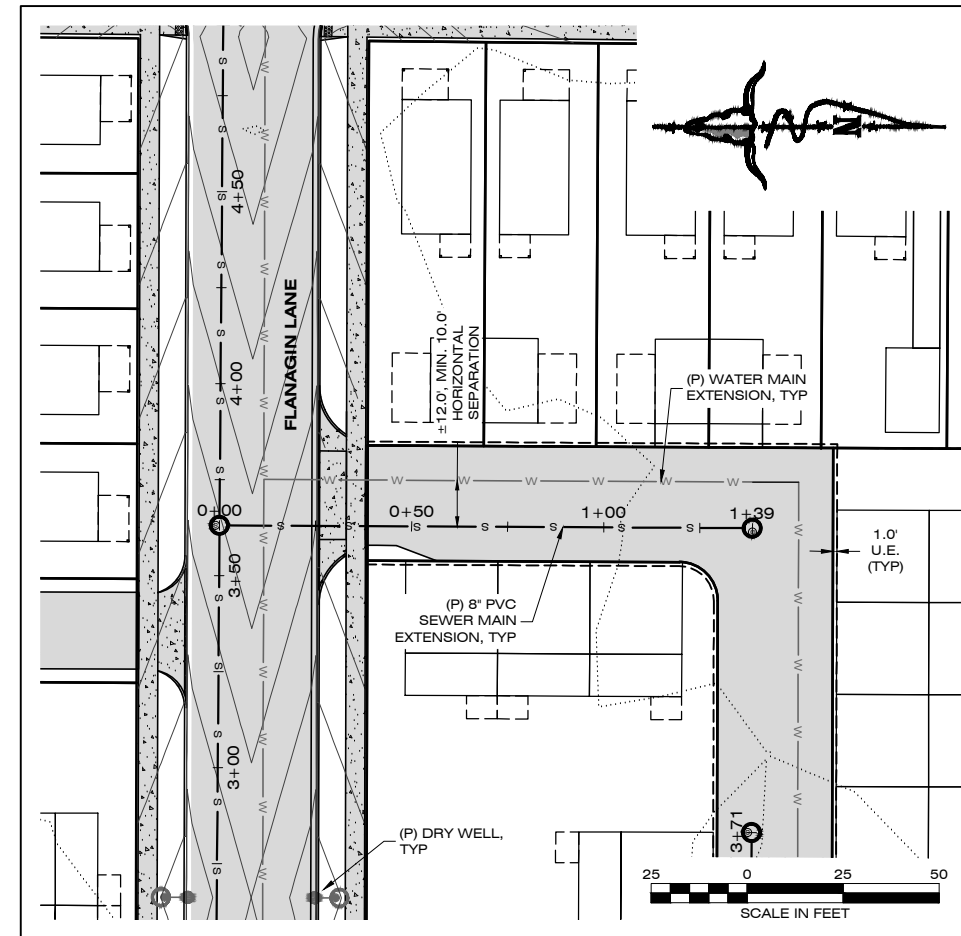
PROJECT NAME: MISSOULA LOFT HOMES ON MARY JANE  
 PROJECT NO.: 22000700.01  
 SHEET: 4 OF 25  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS SEWER PLAN AND PROFILE SHEET

**STAGE 2**

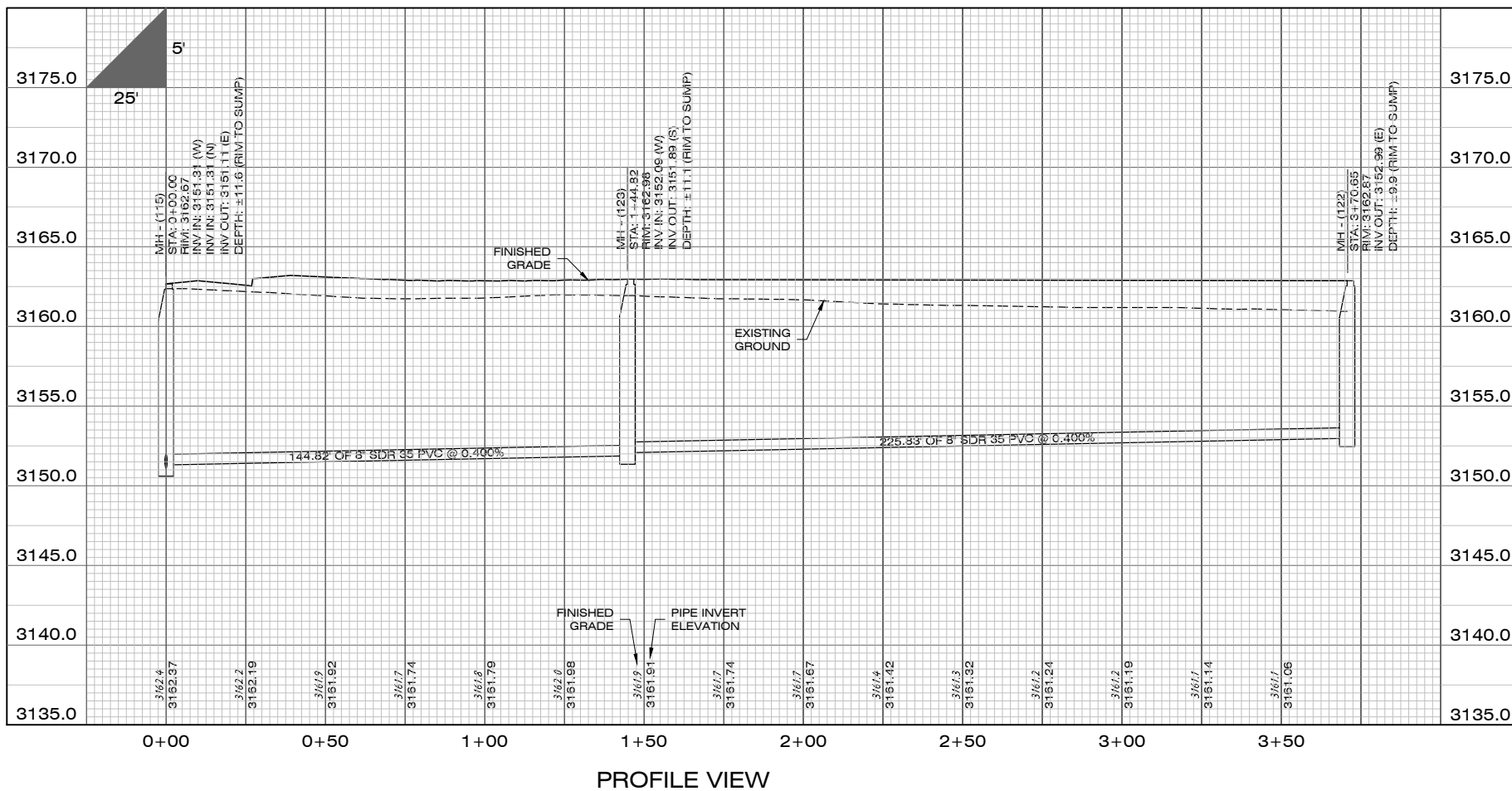
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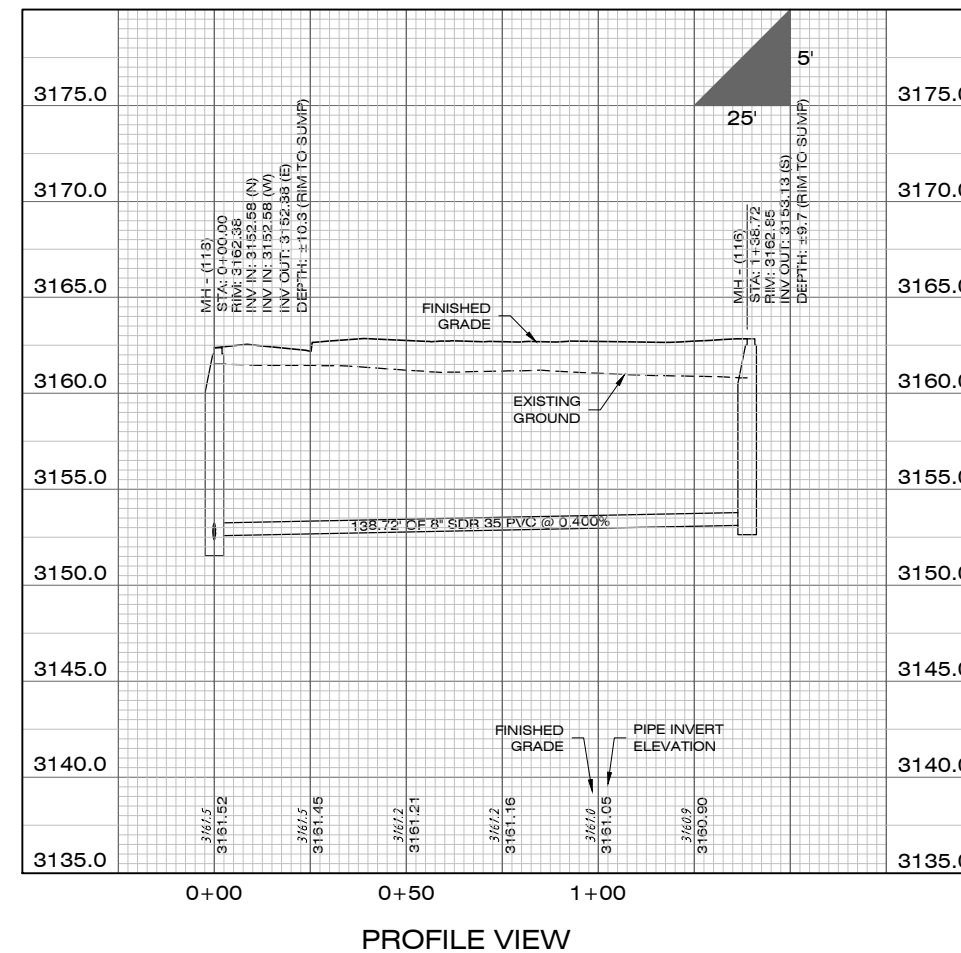
PLAN VIEW




PLAN VIEW



PROFILE VIEW



PROFILE VIEW



1817 SOUTH AVE. W. STE. A  
MISSOULA, MT 59801  
PH: 406.721.0142  
FAX: 406.721.5224  
www.imegcorp.com

DATE: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

DESIGNED: *AJM*

DRAFTED: *LTM*

CHECKED: *AJM*

DATE: *APR 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
MARY JANE BOULEVARD  
SEC 18, T13, R19W, P. M. M.  
MISSOULA COUNTY

PREPARED FOR: **MIRAMONTE**

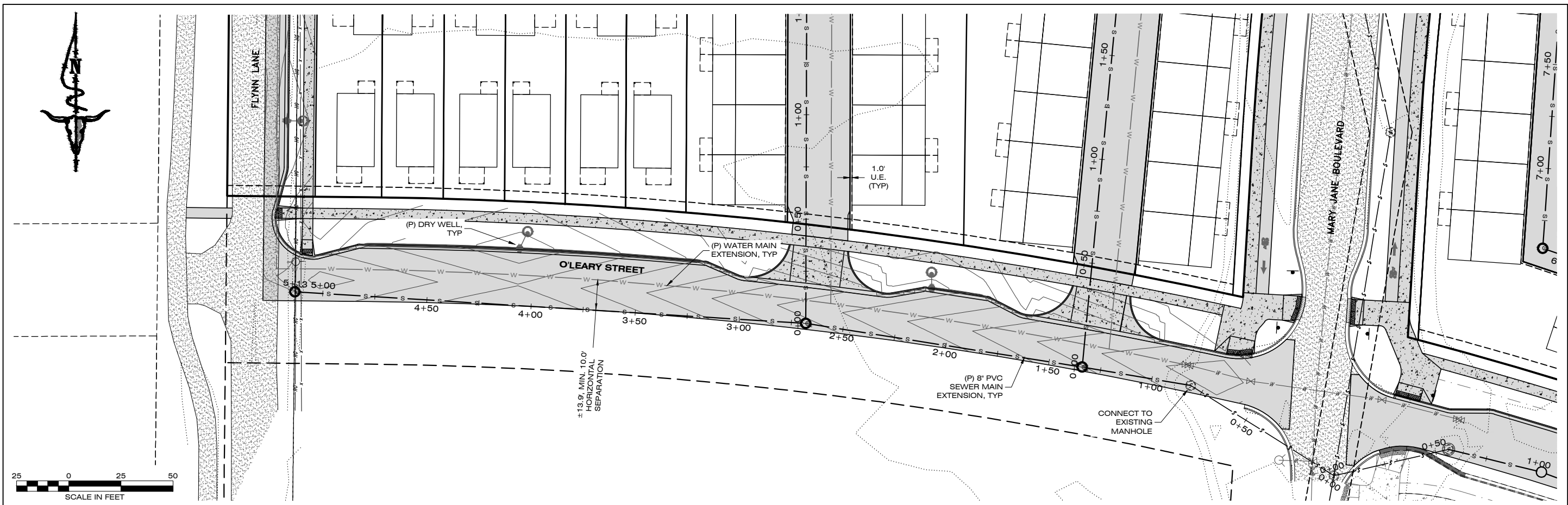
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PROJECT NO: 22000700.01

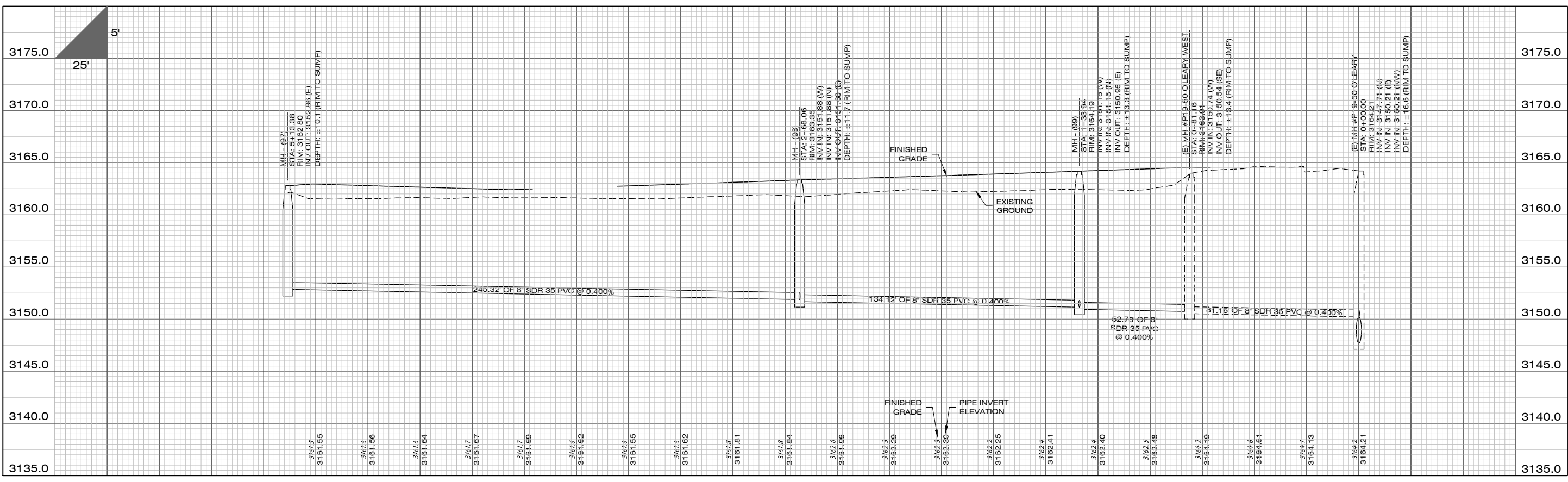
SHEET TITLE: **UTILITY CONSTRUCTION PLANS SEWER PLAN AND PROFILE SHEET**

SHEET: **5 OF 25**

STAGE 2



PLAN VIEW



PROFILE VIEW

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DRAFTED:	LTM
CHECKED:	AJM
DATE:	APR 2023

REVISIONS	DATE

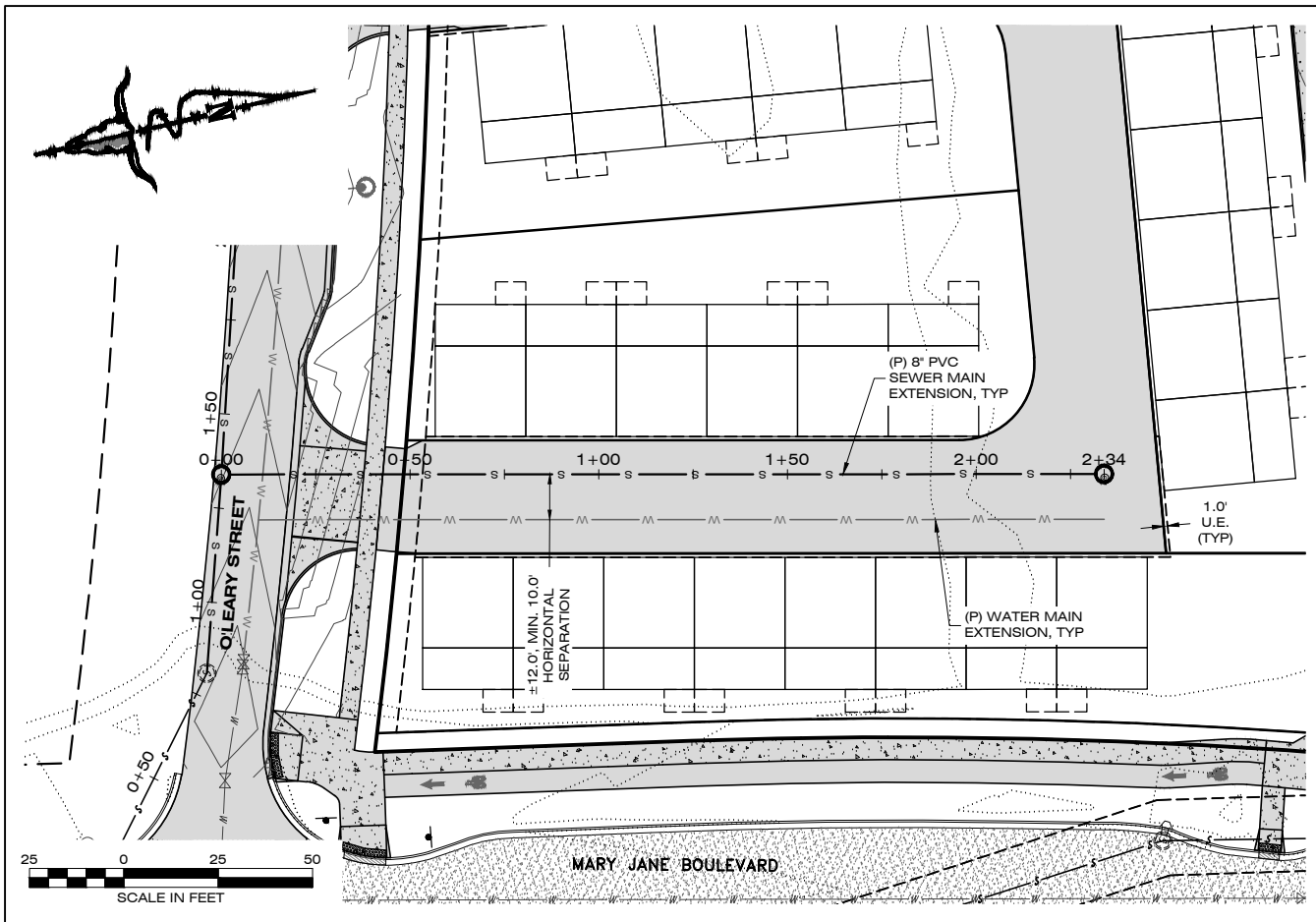
LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 SEWER PLAN AND PROFILE SHEET

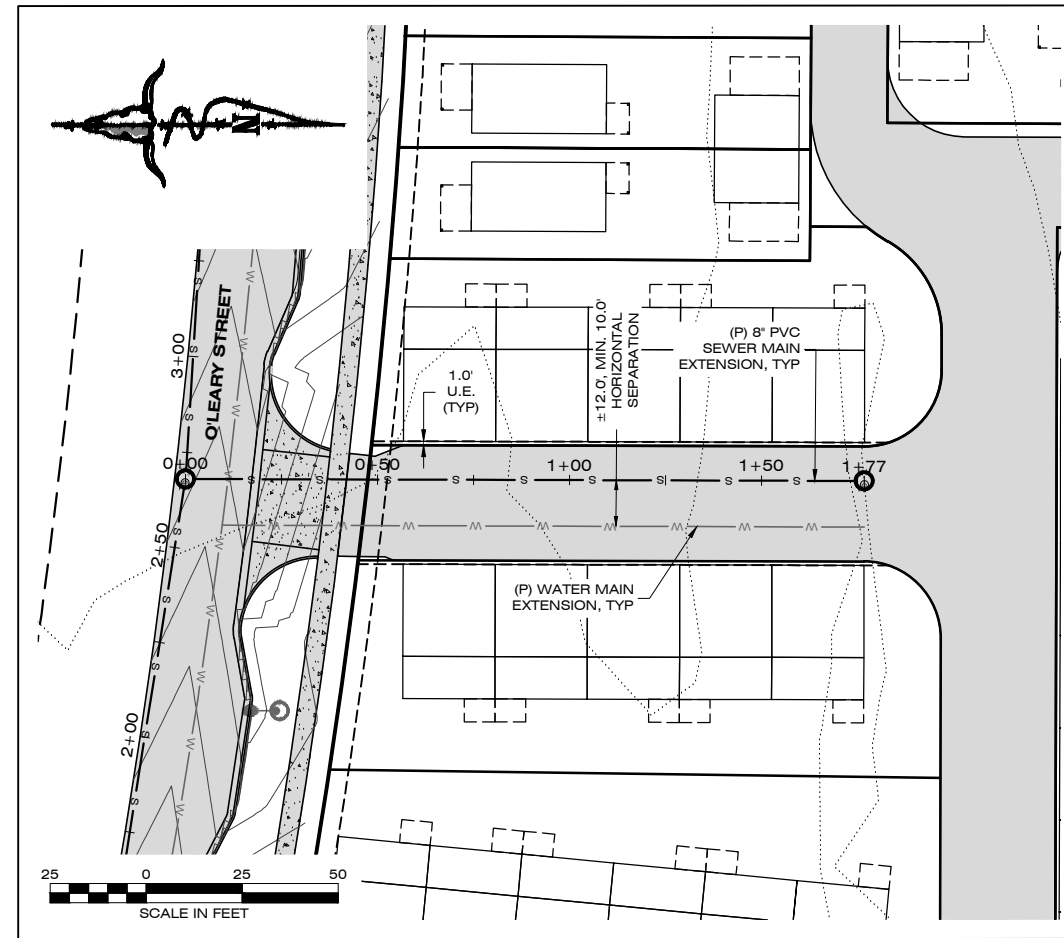
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 SHEET: 6 OF 25

**STAGE 2**

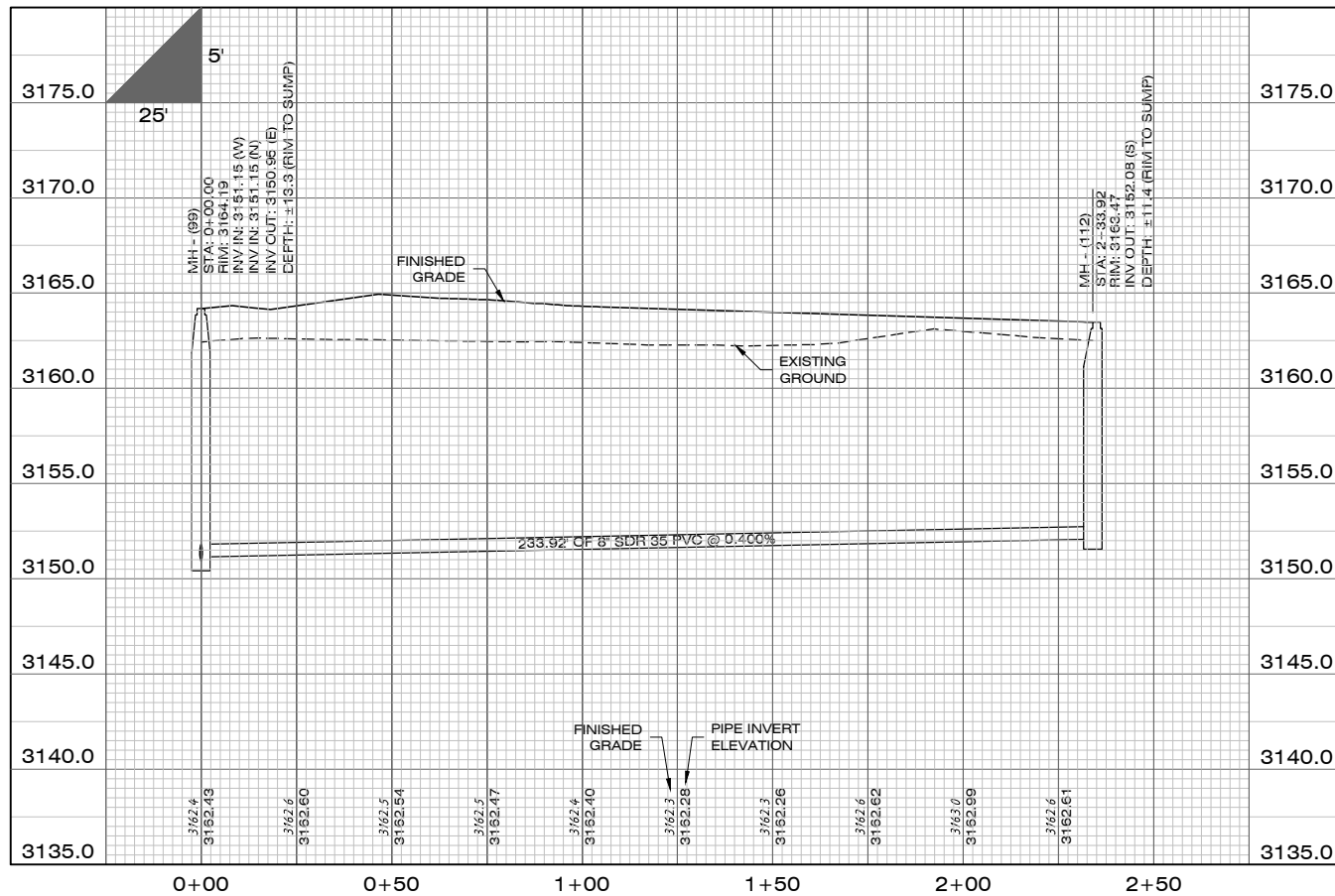
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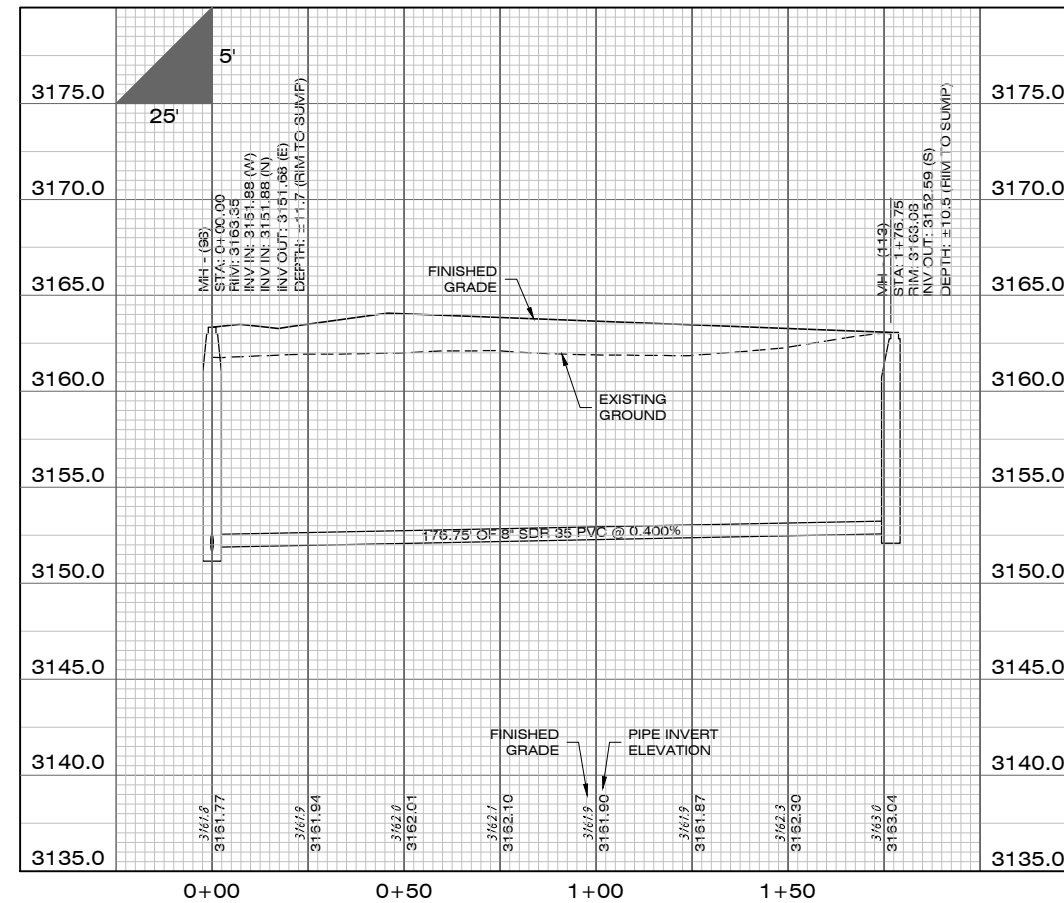
PLAN VIEW



PLAN VIEW



PROFILE VIEW



PROFILE VIEW

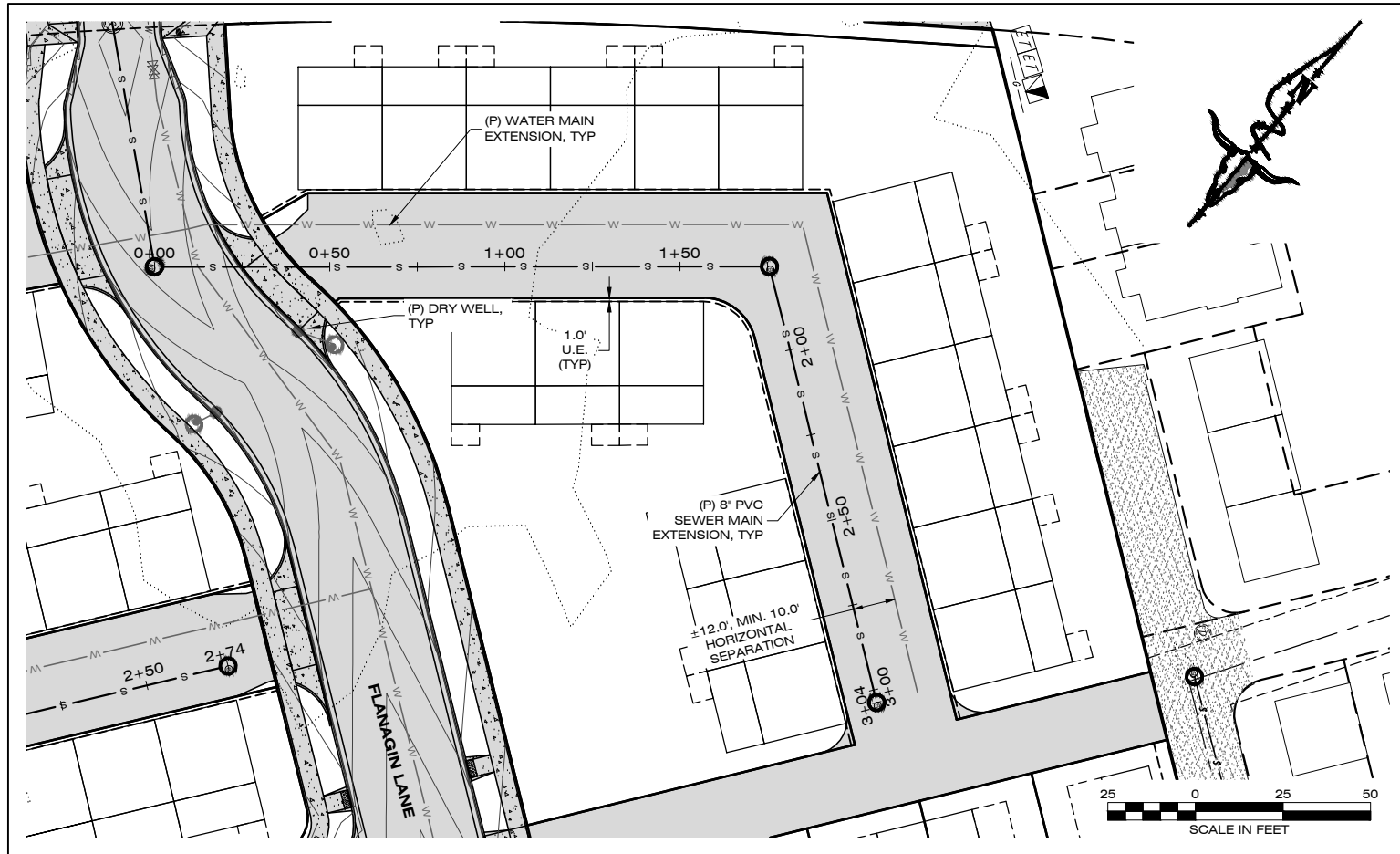
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DATE:	APR. 2023

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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

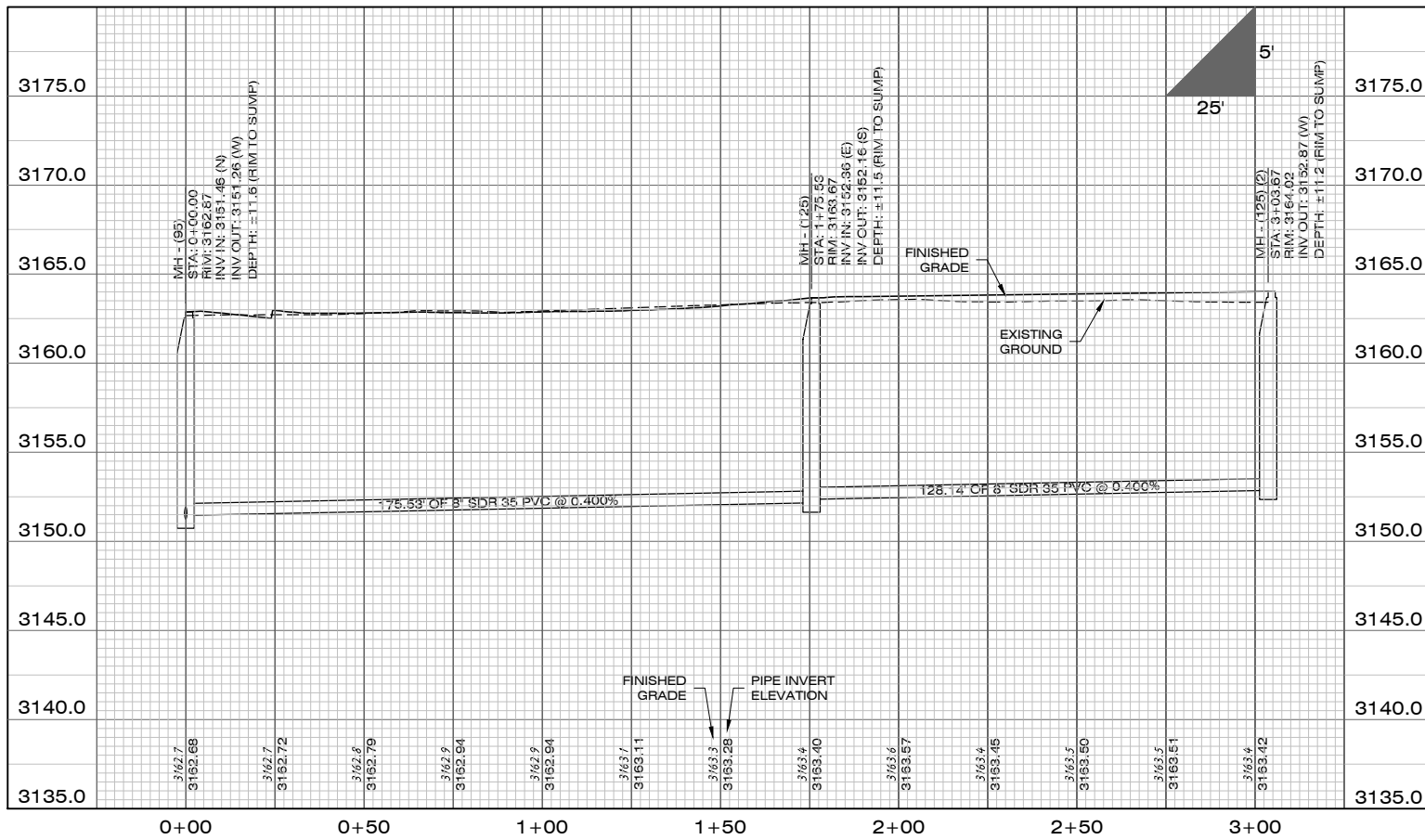
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 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 SHEET: 7 OF 25  
 SEWER PLAN AND PROFILE SHEET

**STAGE 2**

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PLAN VIEW



PROFILE VIEW

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 DATE: *APR. 2023*

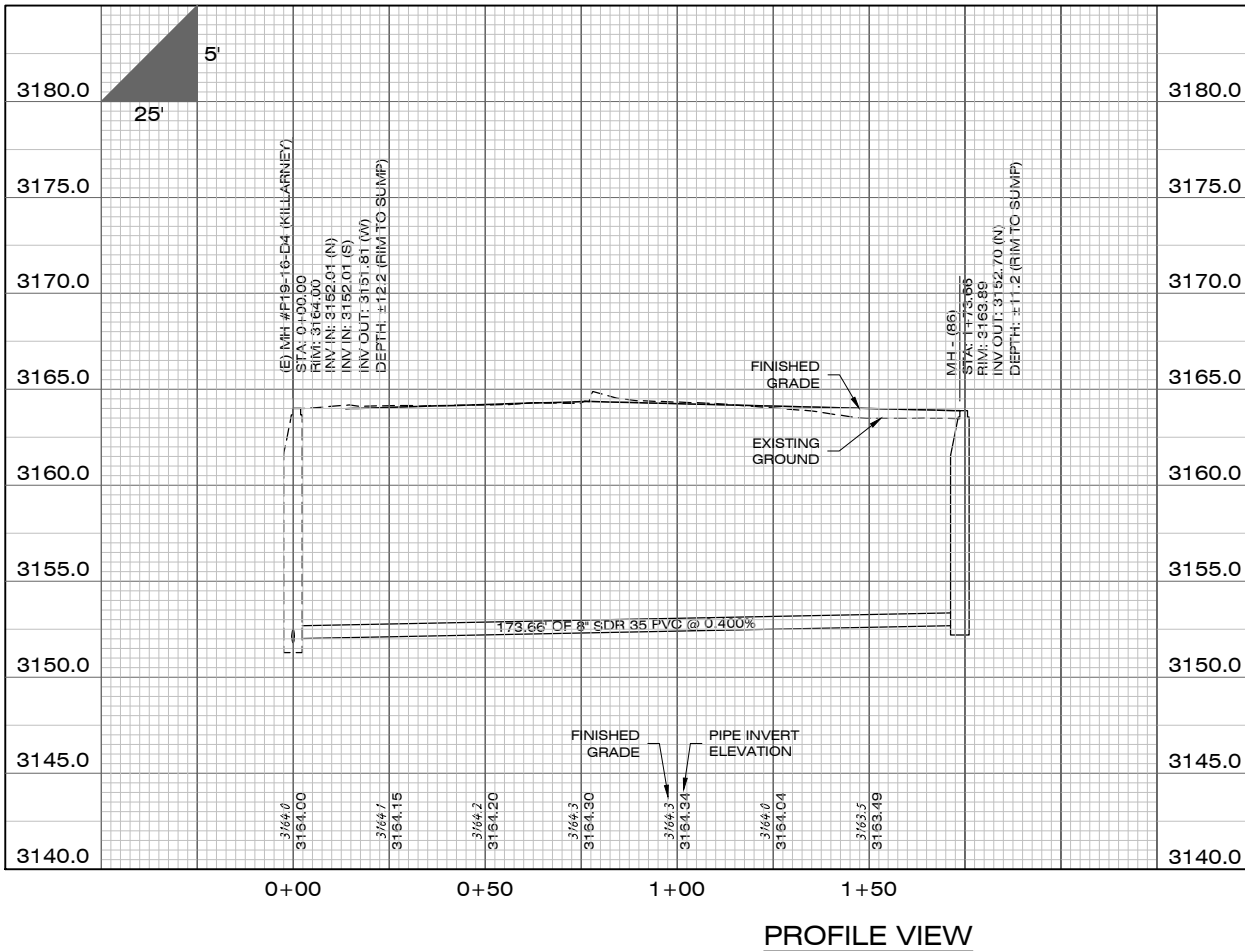
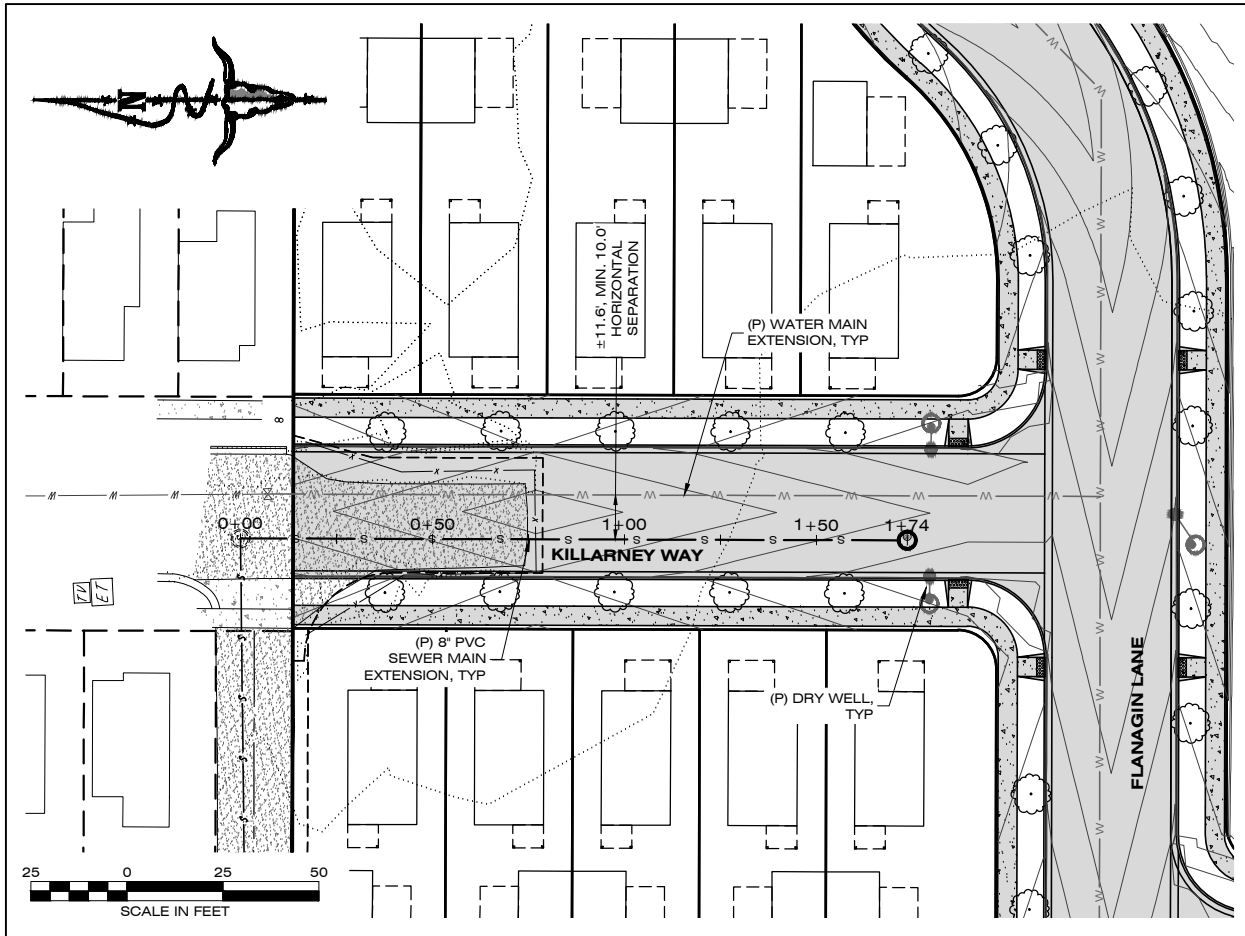
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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 SEWER PLAN AND PROFILE SHEET

PROJECT NO. 22000700.01  
 SHEET: 8 OF 25

**STAGE 2**





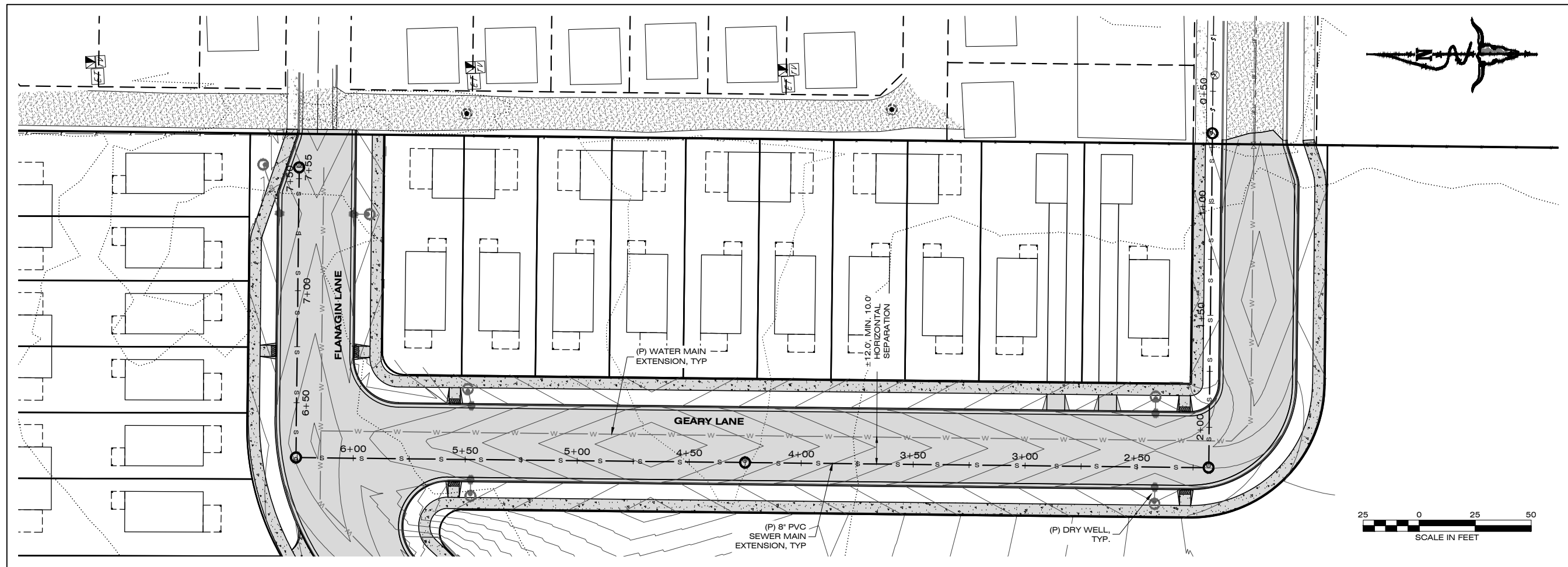
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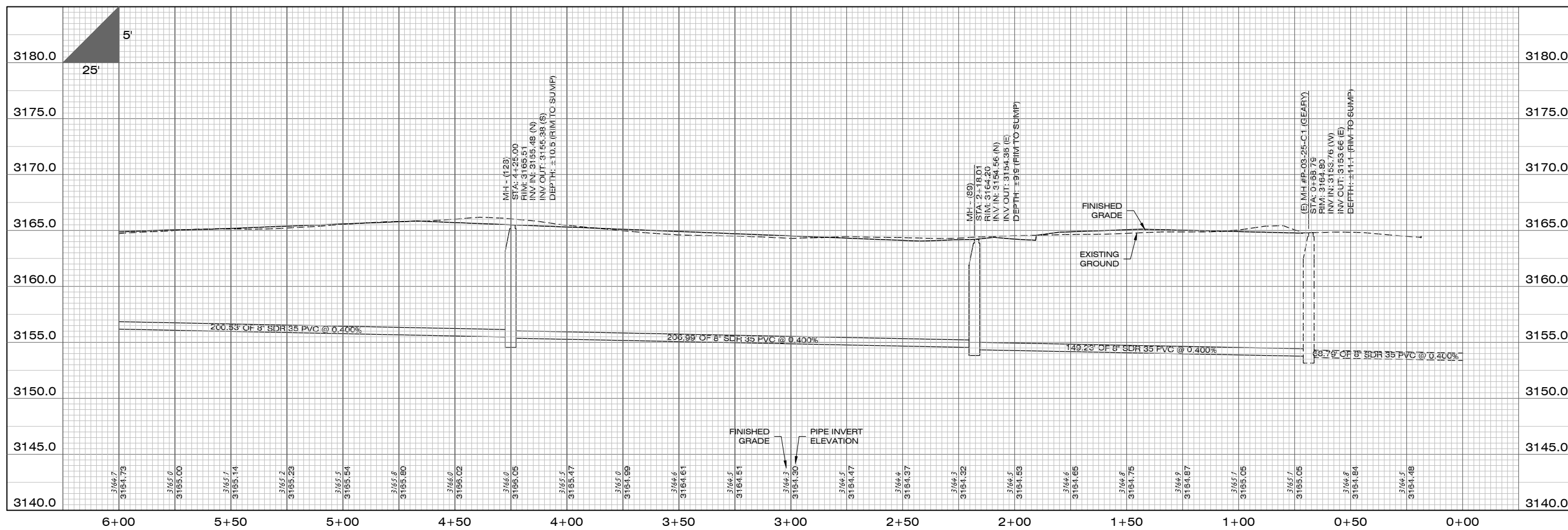
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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: **MIRAMONTE**

PROJECT NAME: **MISSOULA LOFT HOMES ON MARY JANE**  
 PROJECT NO.: 22000700.01  
 SHEET TITLE: **UTILITY CONSTRUCTION PLANS SEWER PLAN AND PROFILE SHEET**  
 SHEET: **9 OF 25**


**STAGE 2**



PLAN VIEW



PROFILE VIEW



1817 SOUTH AVE. W. STE. A  
MISSOULA, MT 59801  
PH: 406.721.0142  
FAX: 406.721.5224  
www.imegcorp.com

DATE: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

DESIGNED: *AJM*

DRAFTED: *LTM*

CHECKED: *AJM*

DATE: *APR. 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
MARY JANE BOULEVARD  
SEC 18, T13, R19W, P. M. M.  
MISSOULA COUNTY

MIRAMONTE

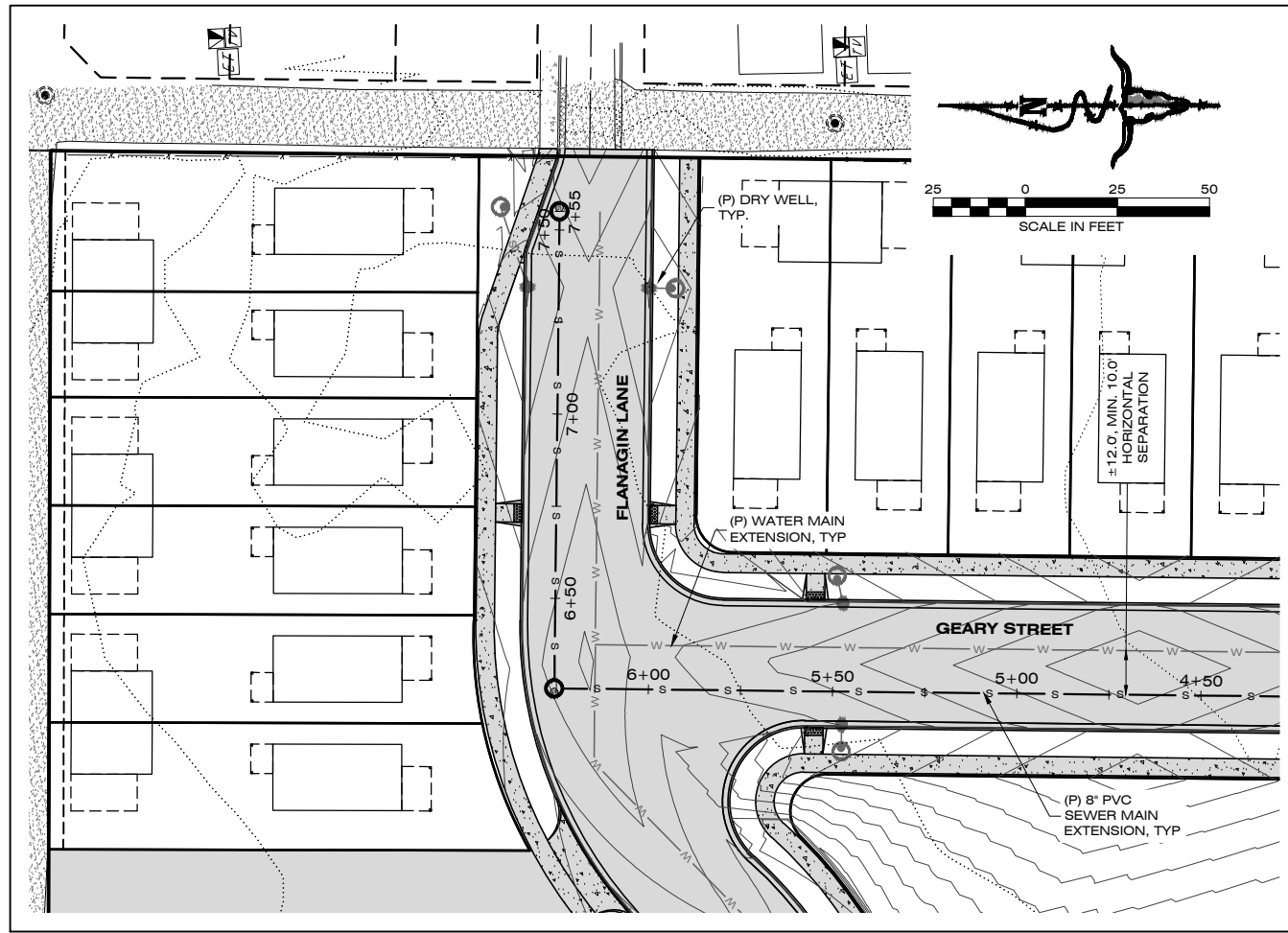
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PROJECT NO.: 22000700.01

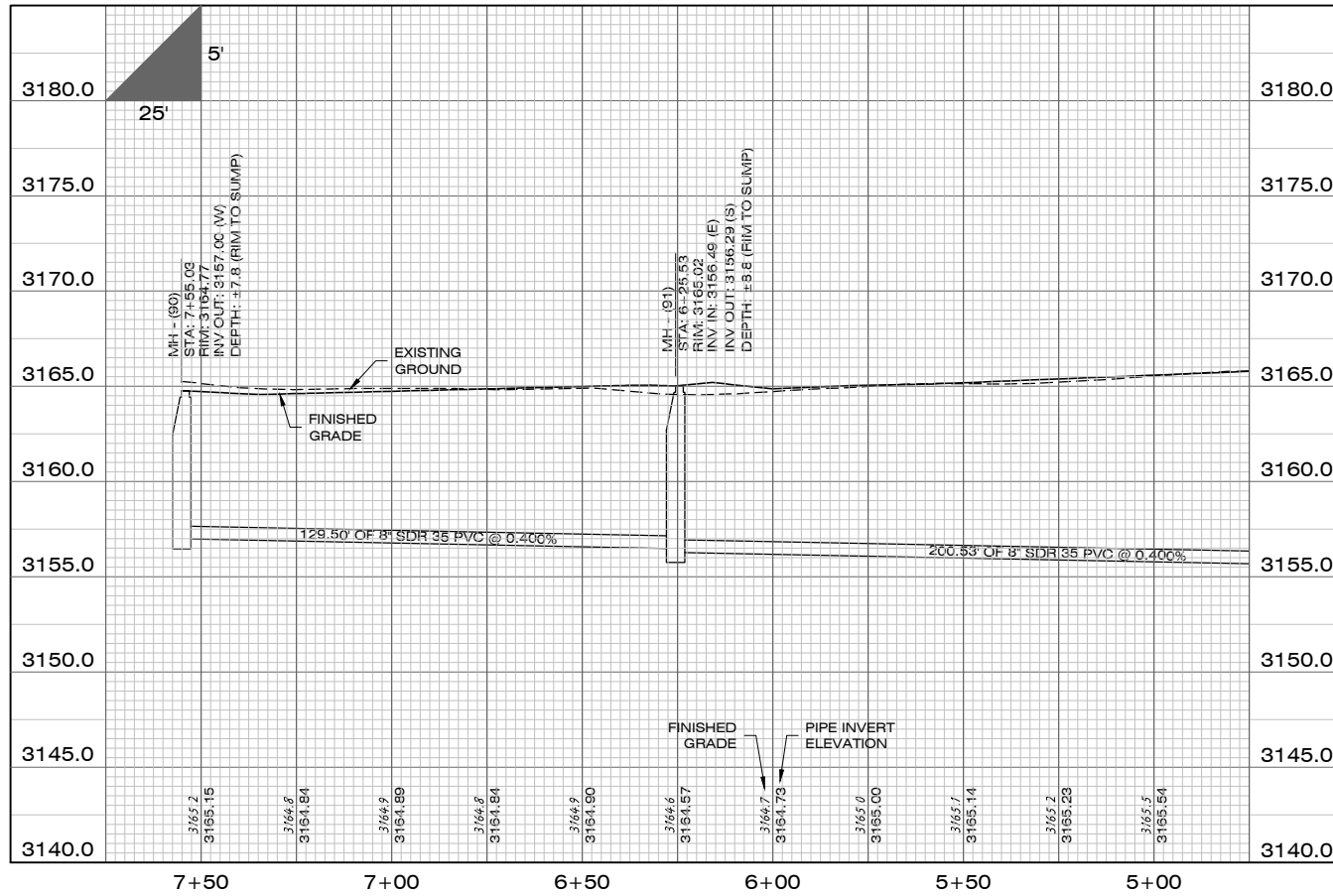
SHEET TITLE: UTILITY CONSTRUCTION PLANS  
SEWER PLAN AND PROFILE SHEET

SHEET: 10 OF 25

STAGE 2



PLAN VIEW



PROFILE VIEW

REVISIONS	DATE

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 DATE: *APR. 2023*

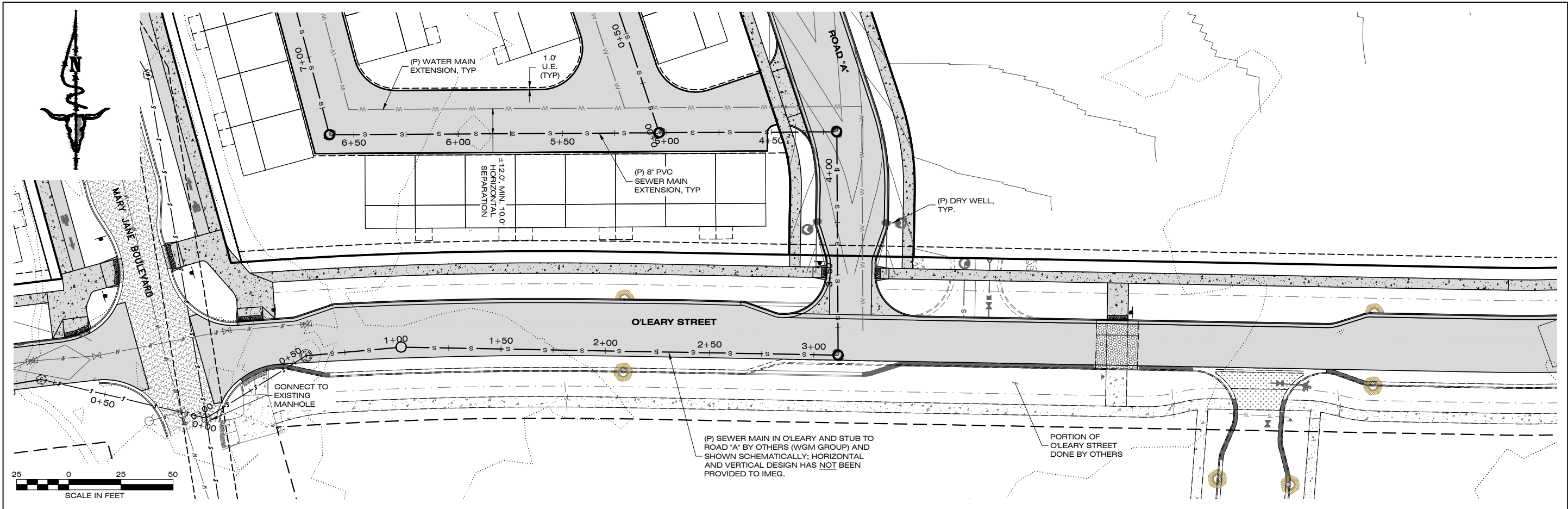
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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: **MIRAMONTE**

PROJECT NAME: **MISSOULA LOFT HOMES ON MARY JANE**  
 SHEET TITLE: **UTILITY CONSTRUCTION PLANS SEWER PLAN AND PROFILE SHEET**

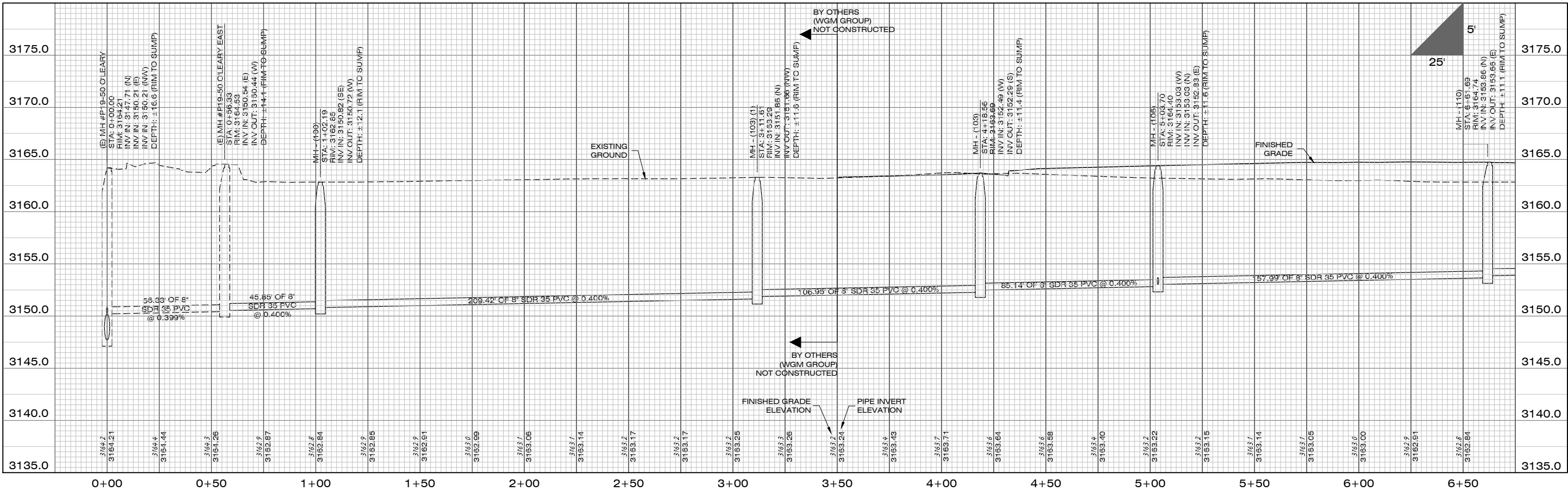
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 SHEET: 11 OF 25

**STAGE 2**

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PLAN VIEW



PROFILE VIEW

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REVISIONS	

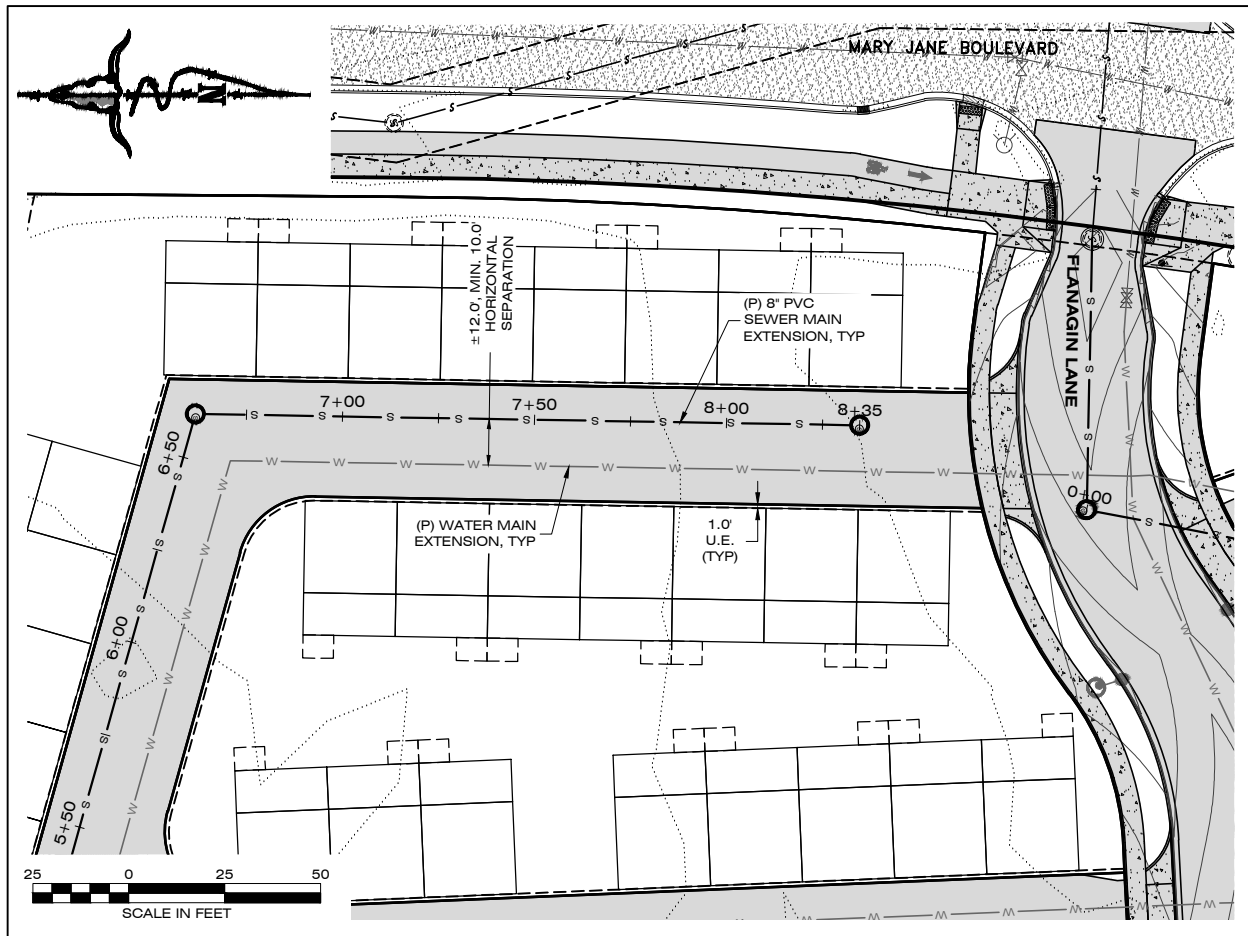
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 DATE: *APR. 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY, MONTANA  
 PREPARED FOR: **MIRAMONTE**

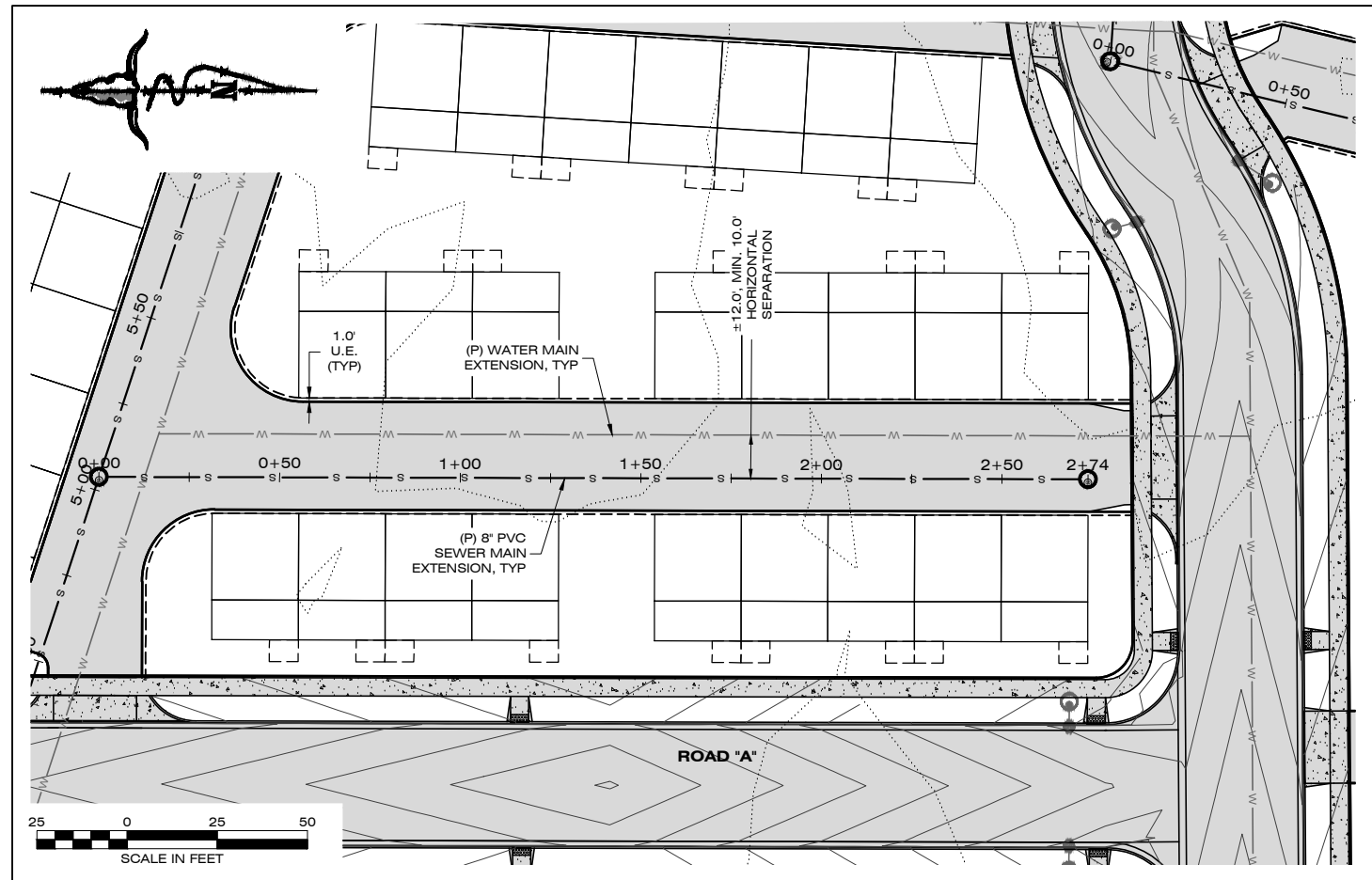
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 SHEET: 12 OF 25

**STAGE 2**

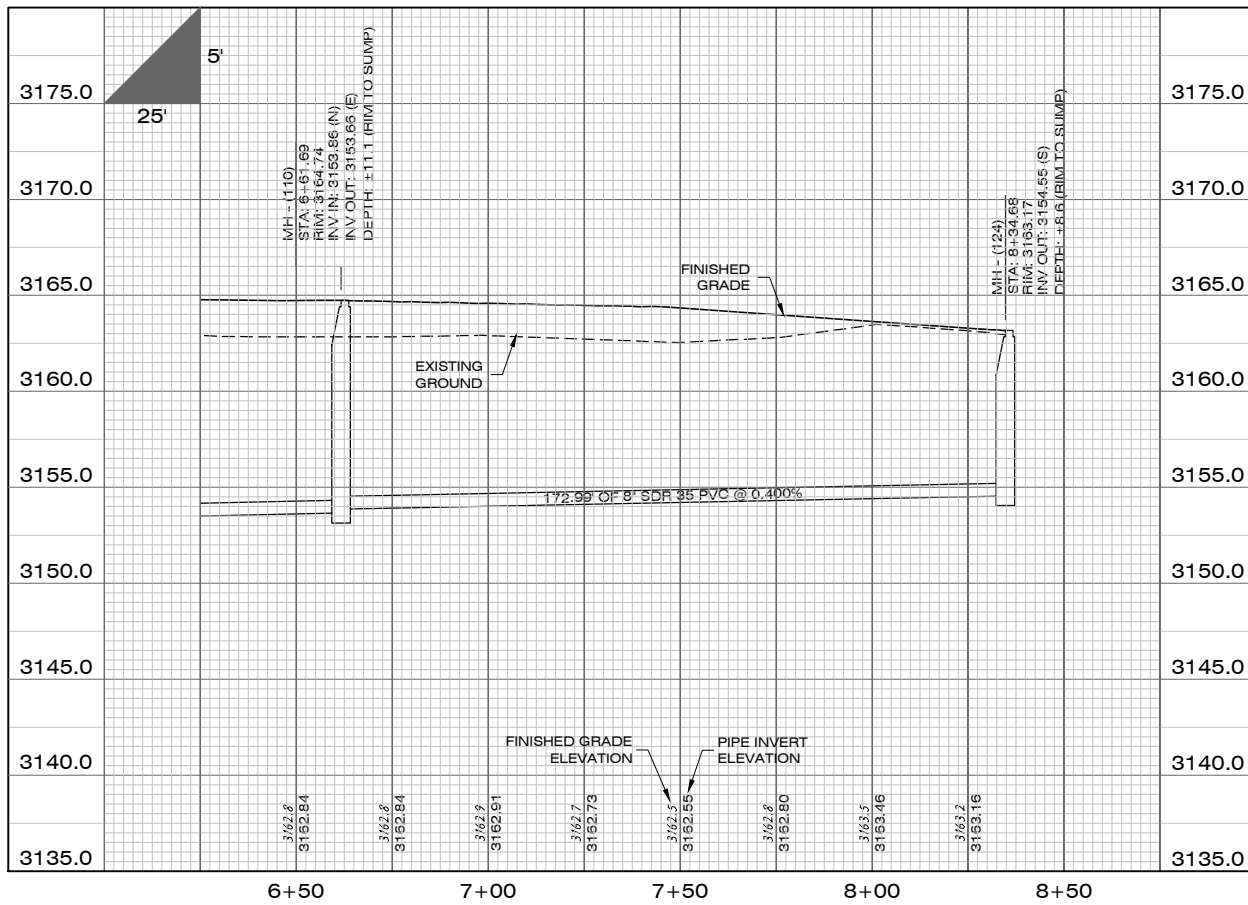
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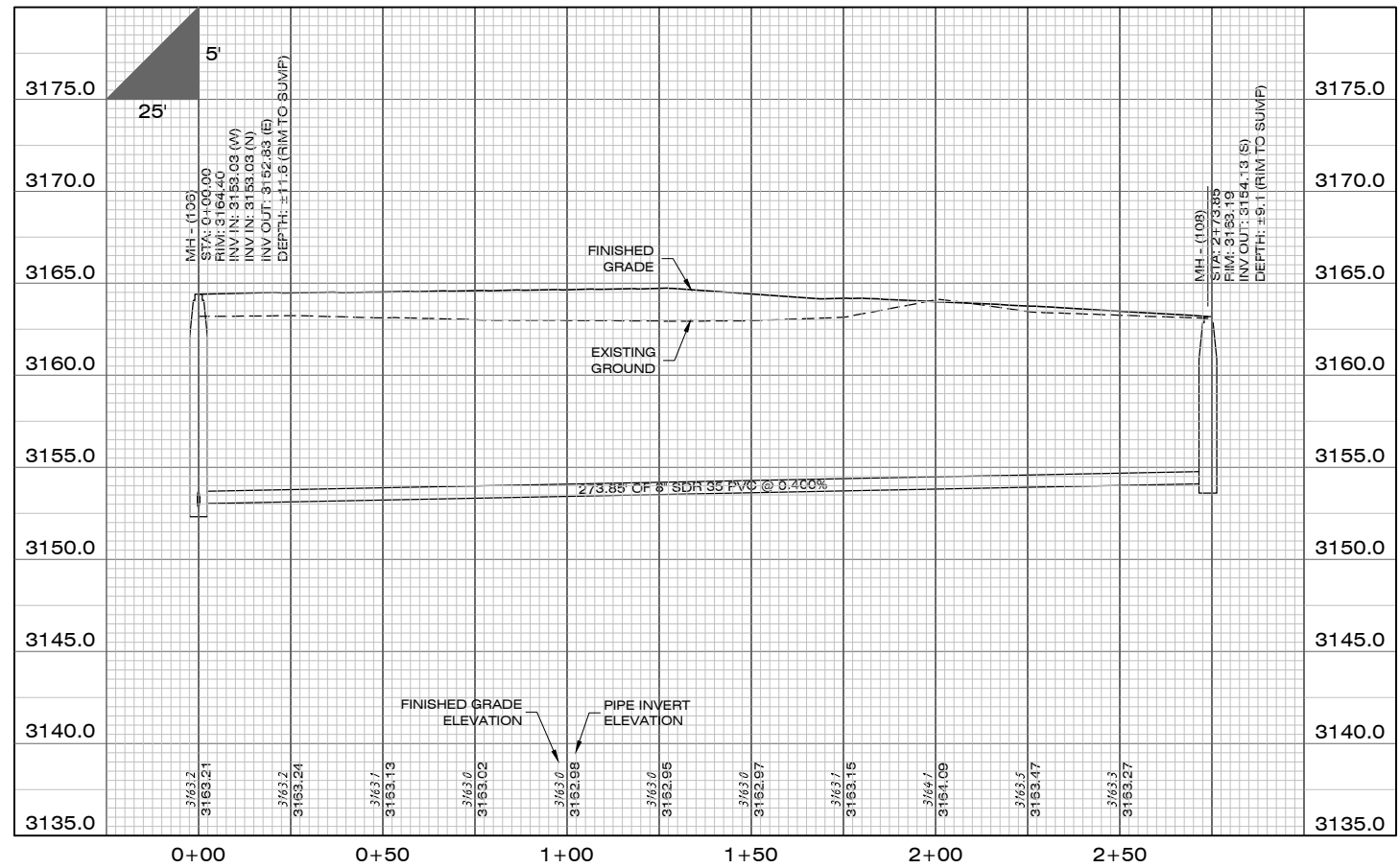
PLAN VIEW



PLAN VIEW



PROFILE VIEW



PROFILE VIEW

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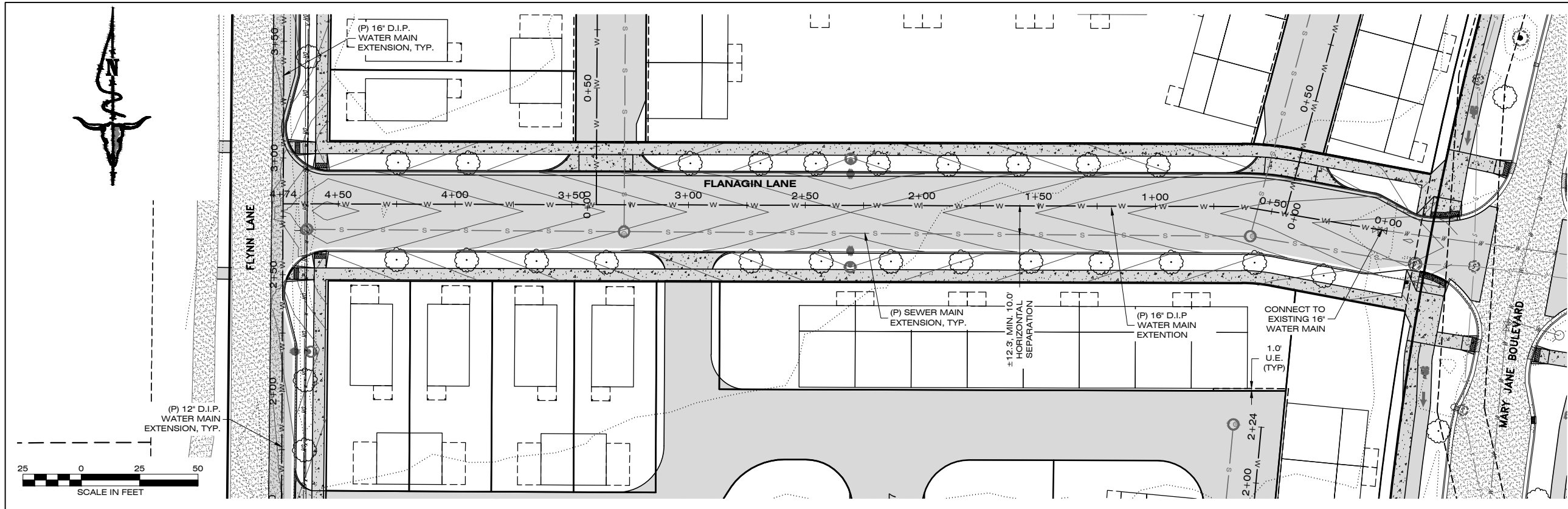
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LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 SEWER PLAN AND PROFILE SHEET

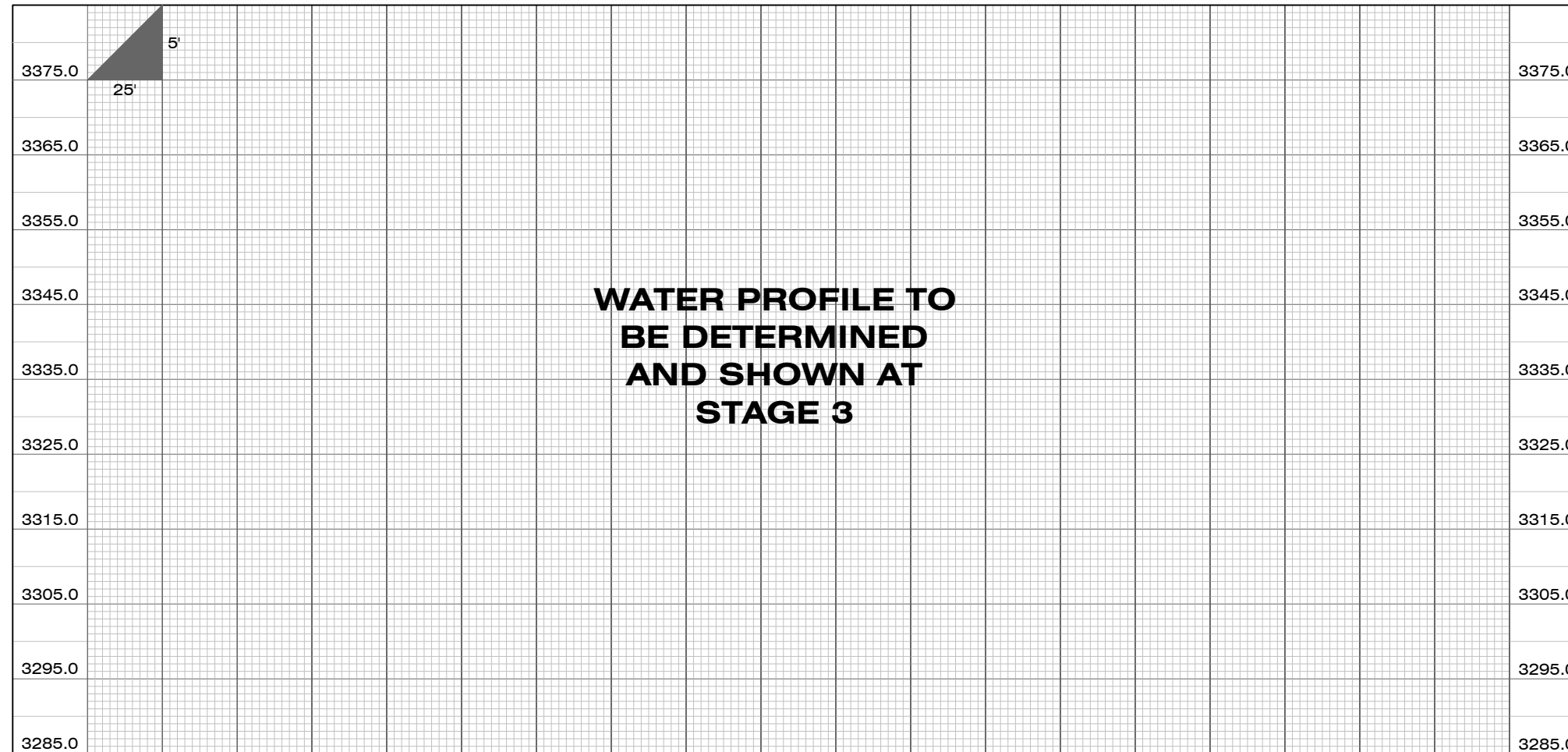
PROJECT NO. 22000700.01  
 SHEET: 13 OF 25

**STAGE 2**



PLAN VIEW

- 1 FLOWABLE FILL AND BLUEBOARD INSULATION SHALL BE INSTALLED PER CITY OF MISSOULA PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL SECTION 4.3.1(E)(2) DUE TO HORIZONTAL SEPARATION BETWEEN WATER MAINS AND SUMPS. SUMPS SHALL NOT BE INSTALLED WITHIN 10 FEET FROM A WATER MAIN, MEASURED BETWEEN THE OUTER WALLS OF THE WATER MAIN AND SUMP. IF THAT SEPARATION CANNOT BE MAINTAINED, THE WATER MAIN SHALL BE PROTECTED WITH FLOWABLE FILL AND/OR INSULATION AS DESCRIBED BELOW.
- IF THE INSTALLATION INVOLVES INSTALLING OR EXPOSING THE WATER MAIN, THE WATER MAIN SHOULD BE ENCASED IN A MINIMUM OF 6 INCHES OF FLOWABLE FILL ABOVE AND BELOW THE MAIN, EXTENDING 10 FEET ALONG THE WATER MAIN IN BOTH DIRECTIONS FROM THE SUMP LOCATION NOT MEETING SEPARATION REQUIREMENTS. IF THE SUMP ROCK IS LESS THAN 6 FEET FROM THE WATER MAIN, A 4-FOOT X 8-FOOT SHEET OF INSULATION SHOULD ALSO BE INSTALLED VERTICALLY AT THE EDGE OF THE SUMP EXCAVATION NEAREST THE WATER MAIN. THE LONG DIMENSION OF THE INSULATION SHOULD BE IN THE VERTICAL DIRECTION.
  - IF THE INSTALLATION DOES NOT INVOLVE THE WATER MAIN BEING INSTALLED OR EXPOSED, A 4-FOOT X 8-FOOT SHEET OF INSULATION SHOULD ALSO BE INSTALLED VERTICALLY AT THE EDGE OF THE SUMP EXCAVATION NEAREST THE WATER MAIN. THE LONG DIMENSION OF THE INSULATION SHOULD BE IN THE VERTICAL DIRECTION.



PROFILE VIEW

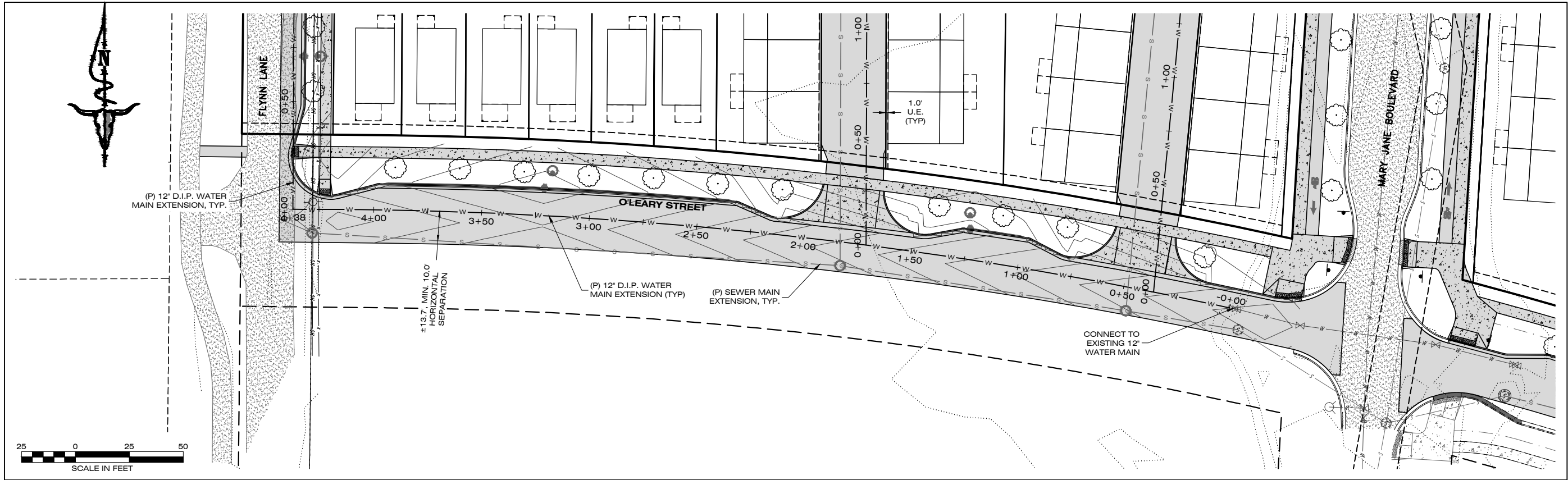
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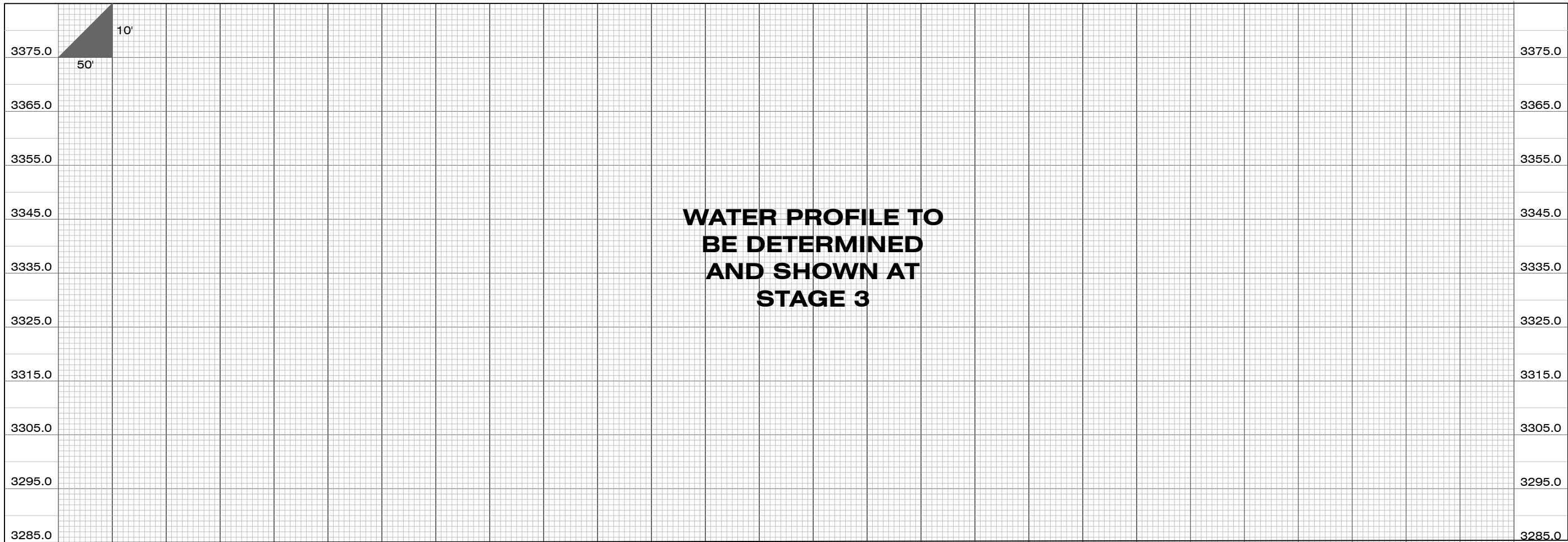
LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET

PROJECT NO. 22000700.01  
 SHEET: 14 OF 25  
**STAGE 2**



PLAN VIEW



PROFILE VIEW

DATE	
REVISIONS	

DESIGNED:	AJM
DRAFTED:	LTM
CHECKED:	AJM
DATE:	APR. 2023

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY

PREPARED FOR: MIRAMONTE

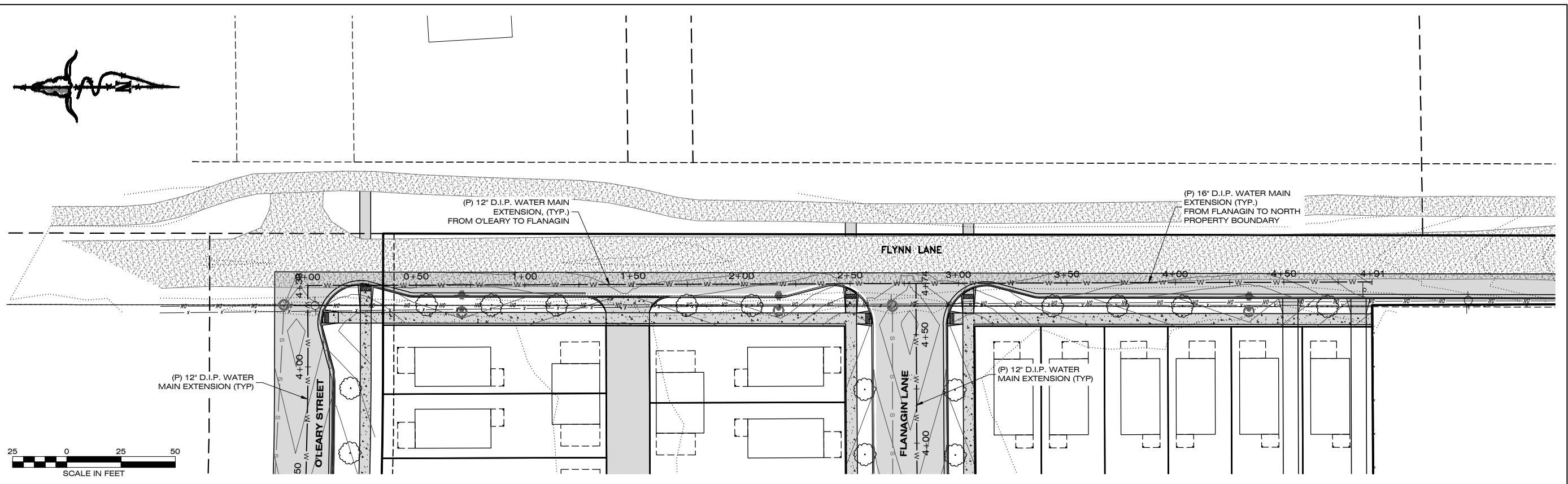
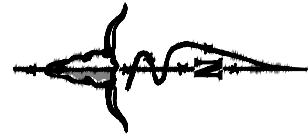
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 ON MARY JANE

SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET

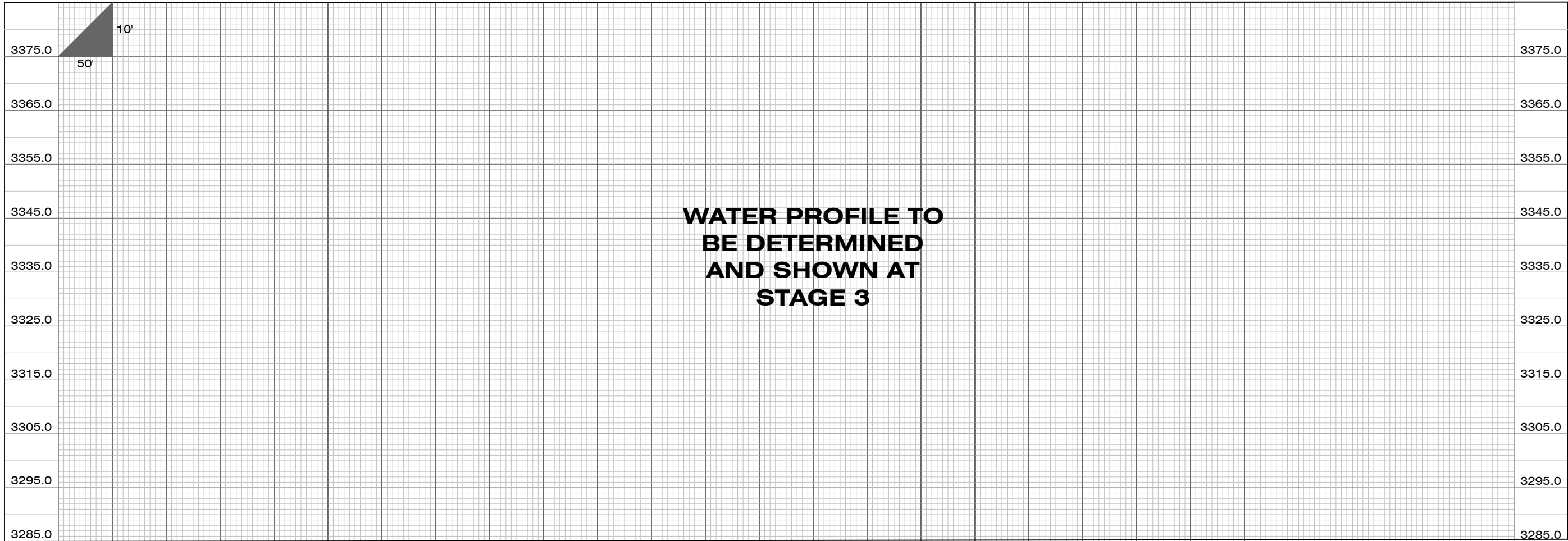
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SHEET: 15 OF 25

**STAGE 2**



PLAN VIEW



PROFILE VIEW

DATE	
REVISIONS	

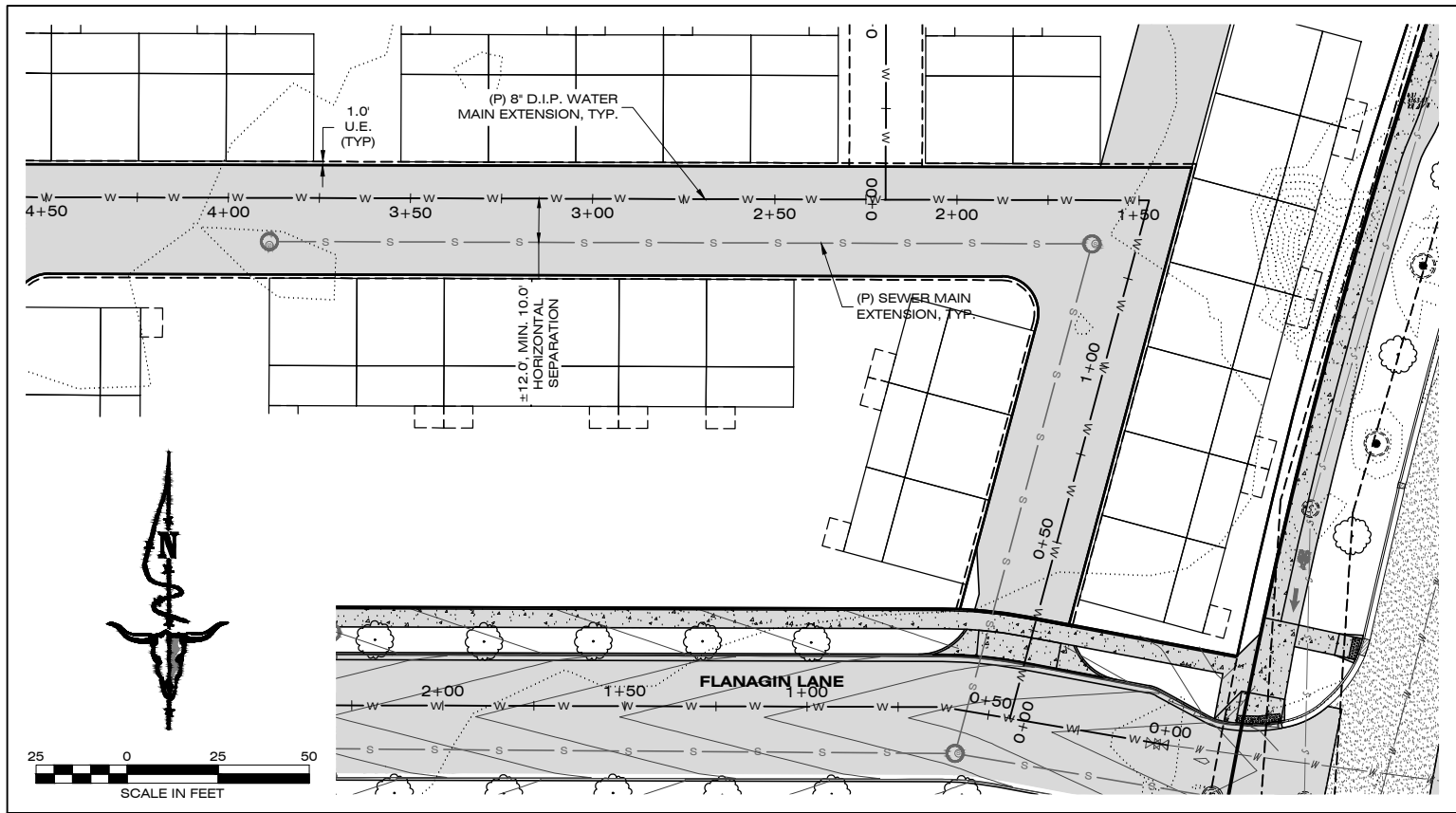
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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

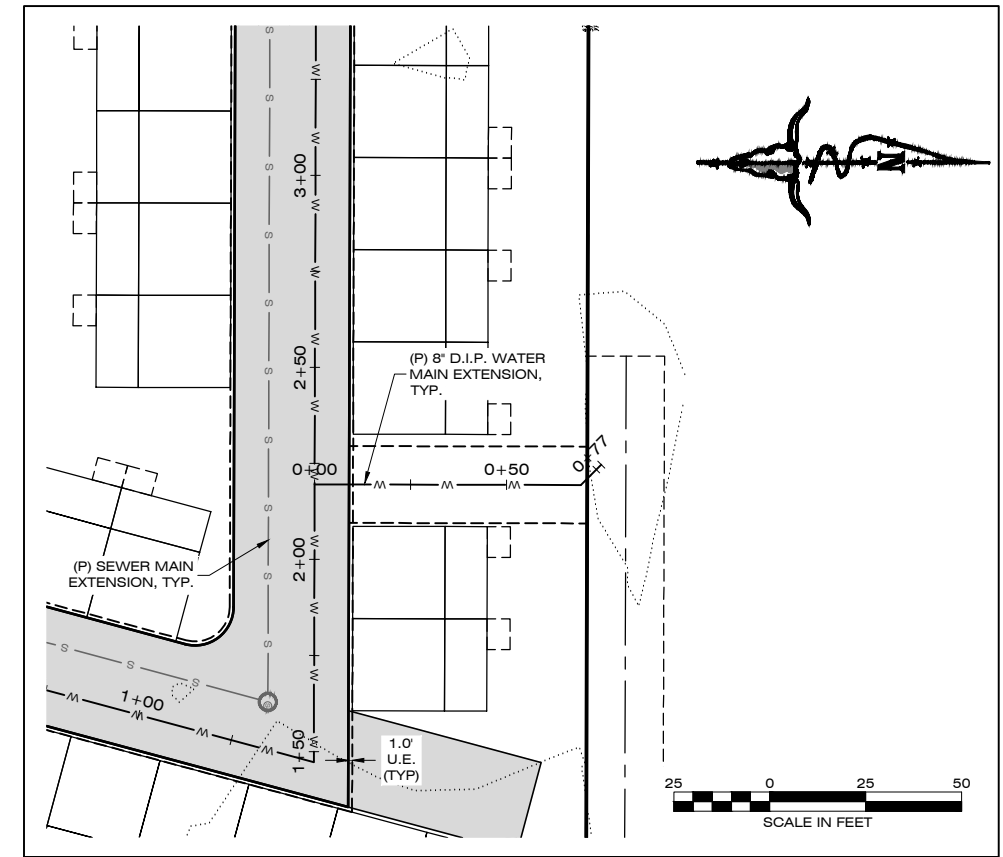
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 ON MARY JANE  
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 WATER PLAN AND PROFILE SHEET

PROJECT NO. 22000700.01  
 SHEET: 16 OF 25  
**STAGE 2**

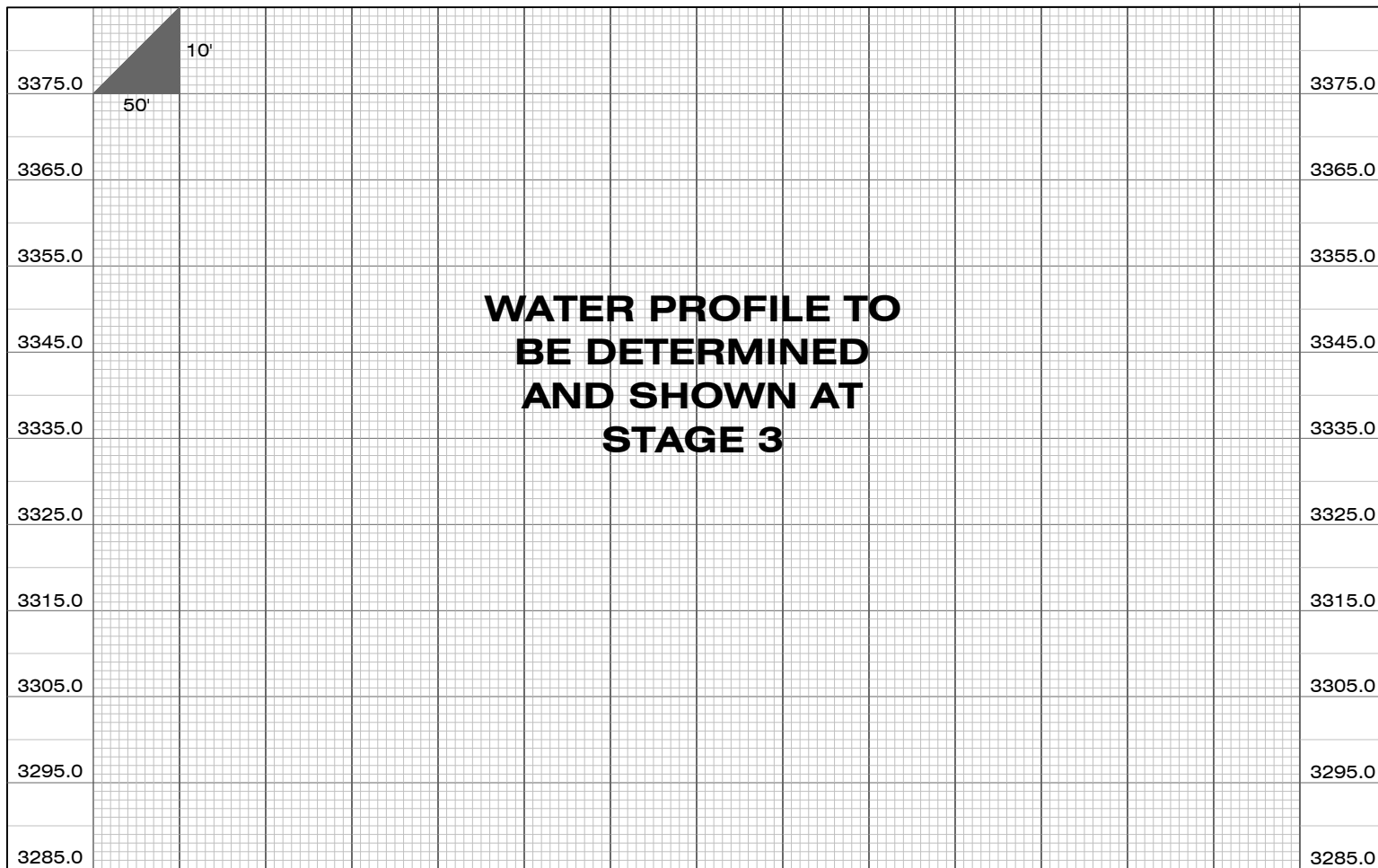




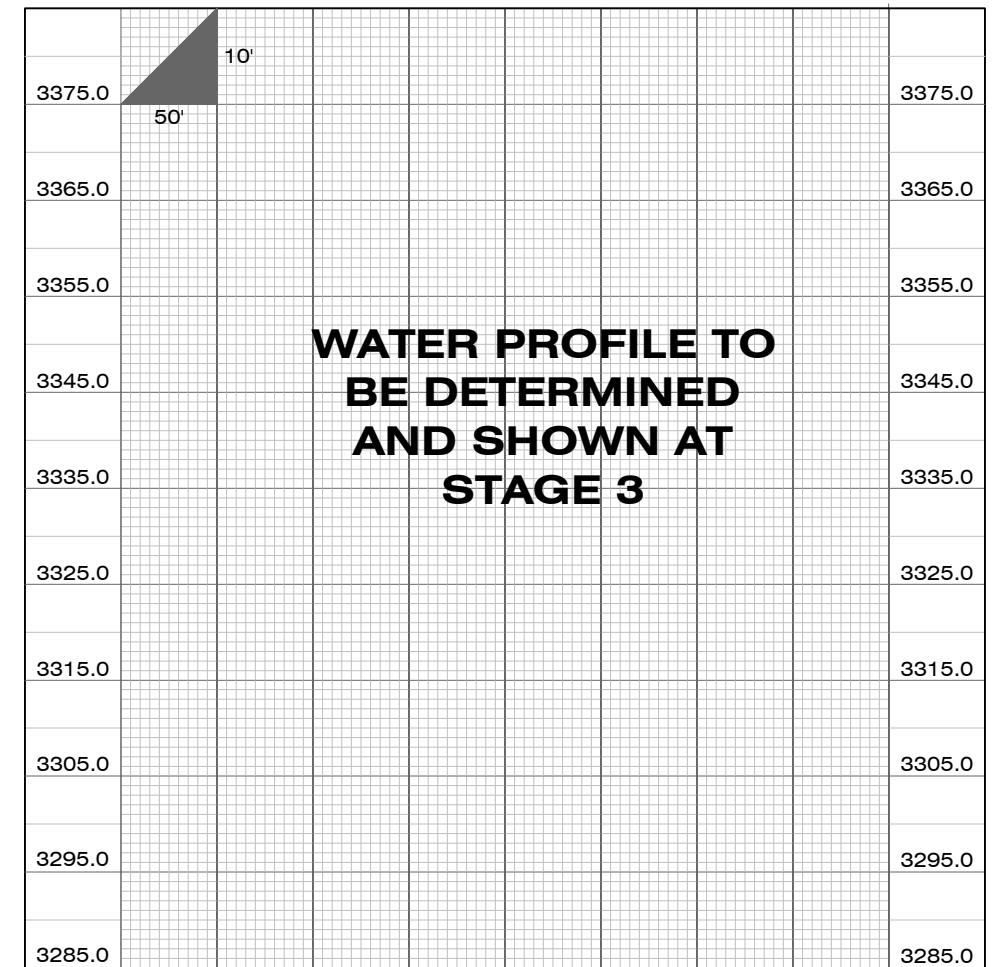
PLAN VIEW



PLAN VIEW



PROFILE VIEW



PROFILE VIEW

DATE	
REVISIONS	

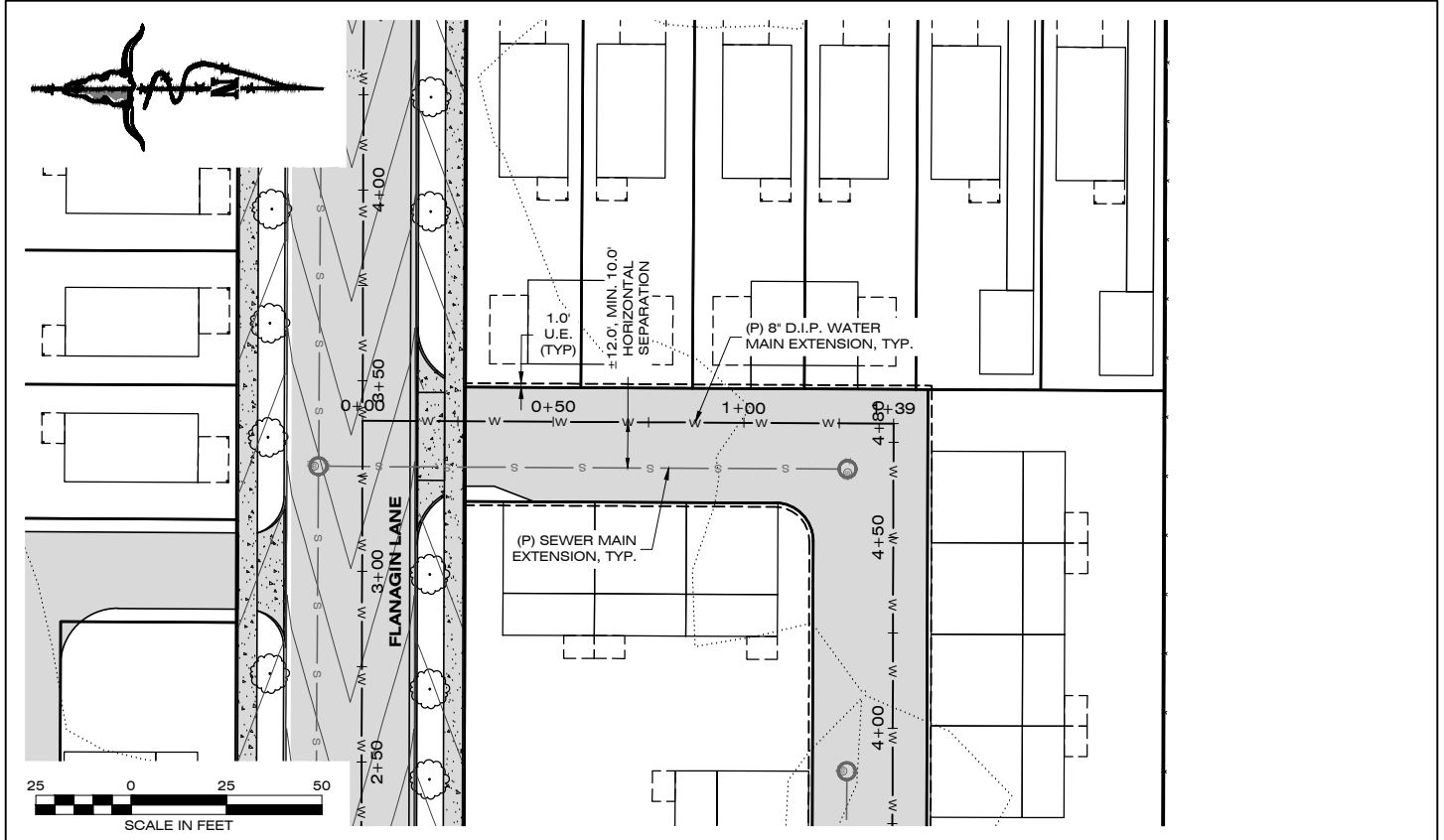
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 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY, MONTANA  
 PREPARED FOR: MIRAMONTE

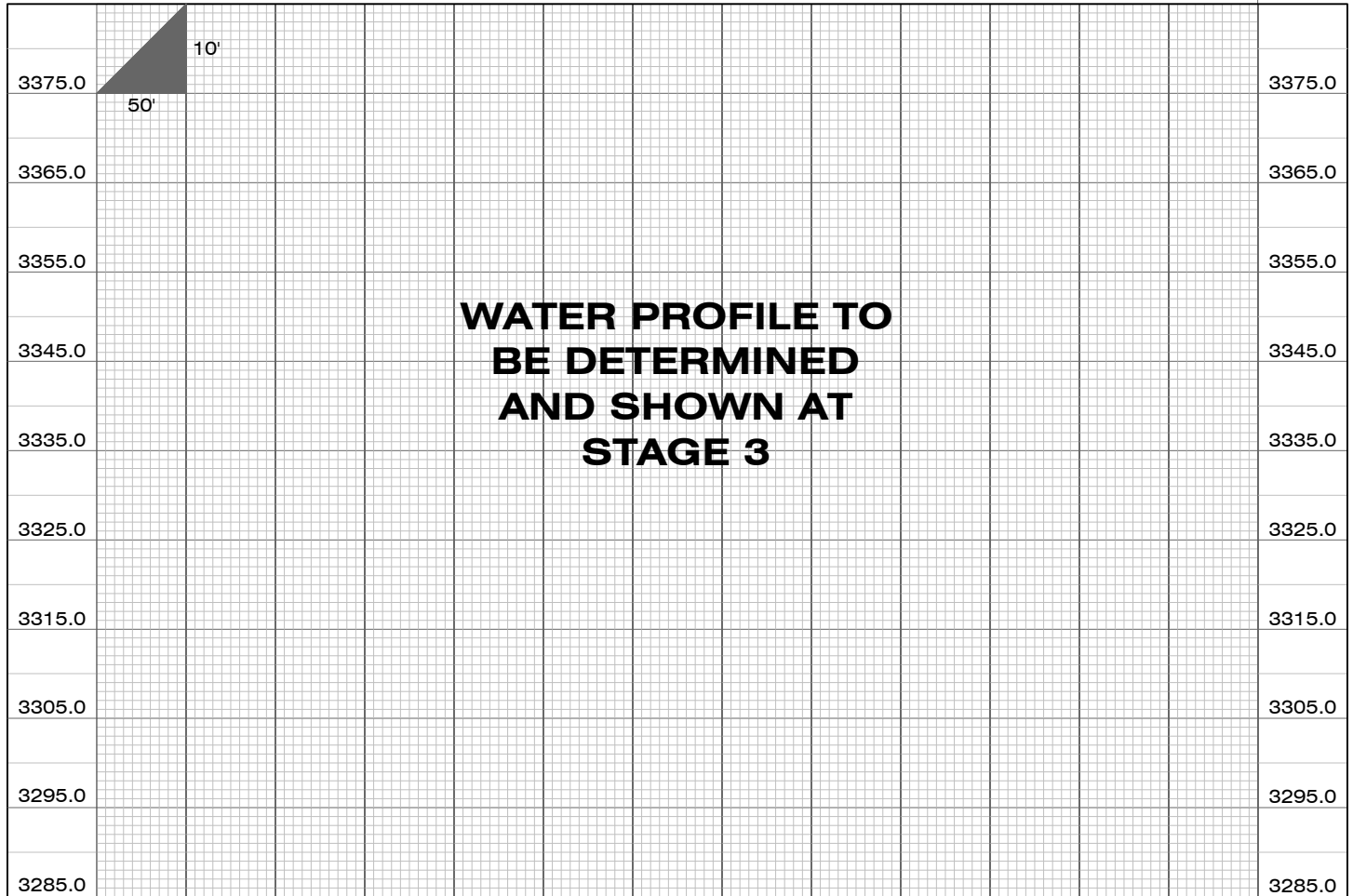
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 SHEET: 17 OF 25

**STAGE 2**

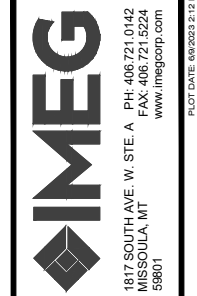
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PLAN VIEW



PROFILE VIEW



DATE	
REVISIONS	

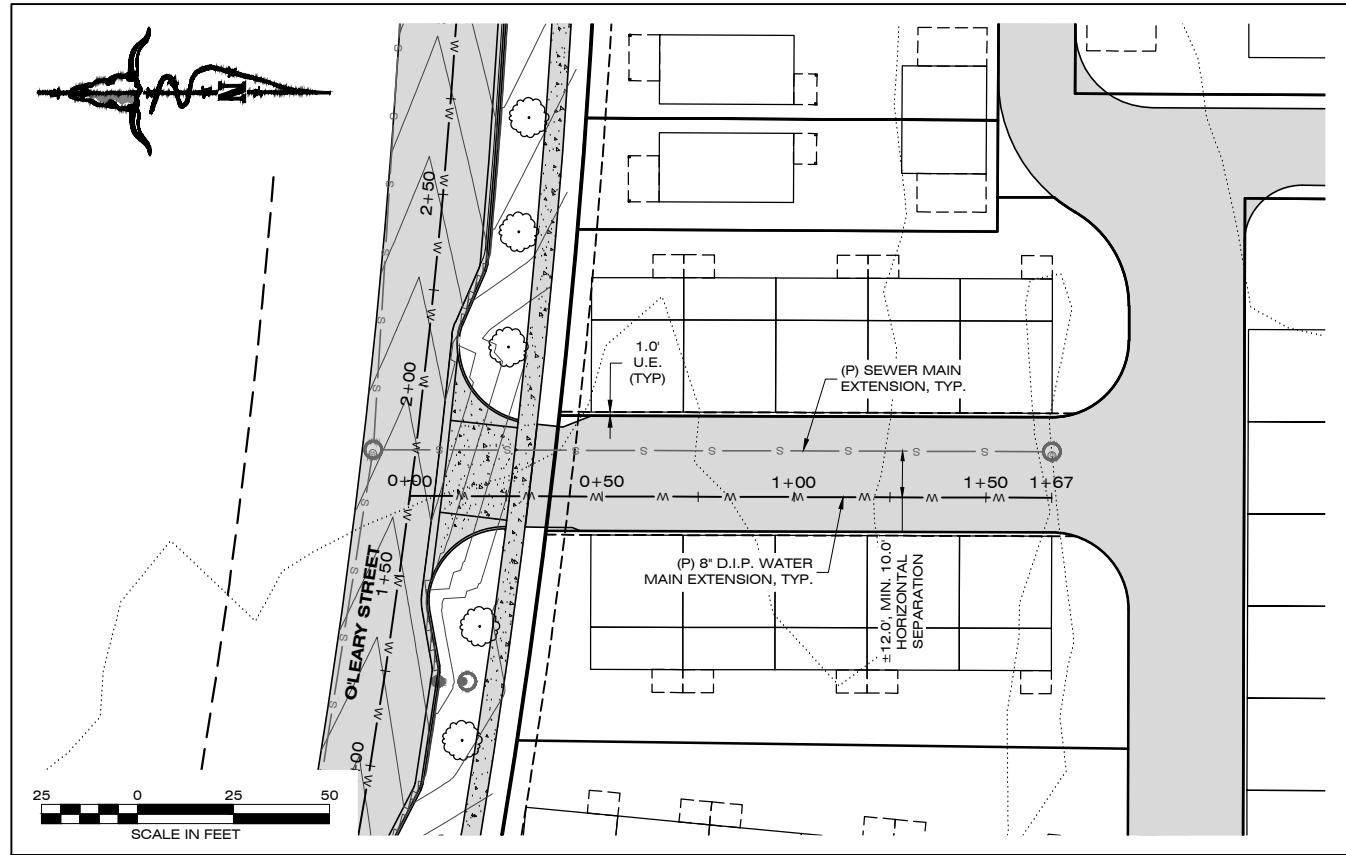
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 DATE: APR. 2023

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817 MARY JANE BOULEVARD SEC 18, T13, R19W, P. M. M. MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

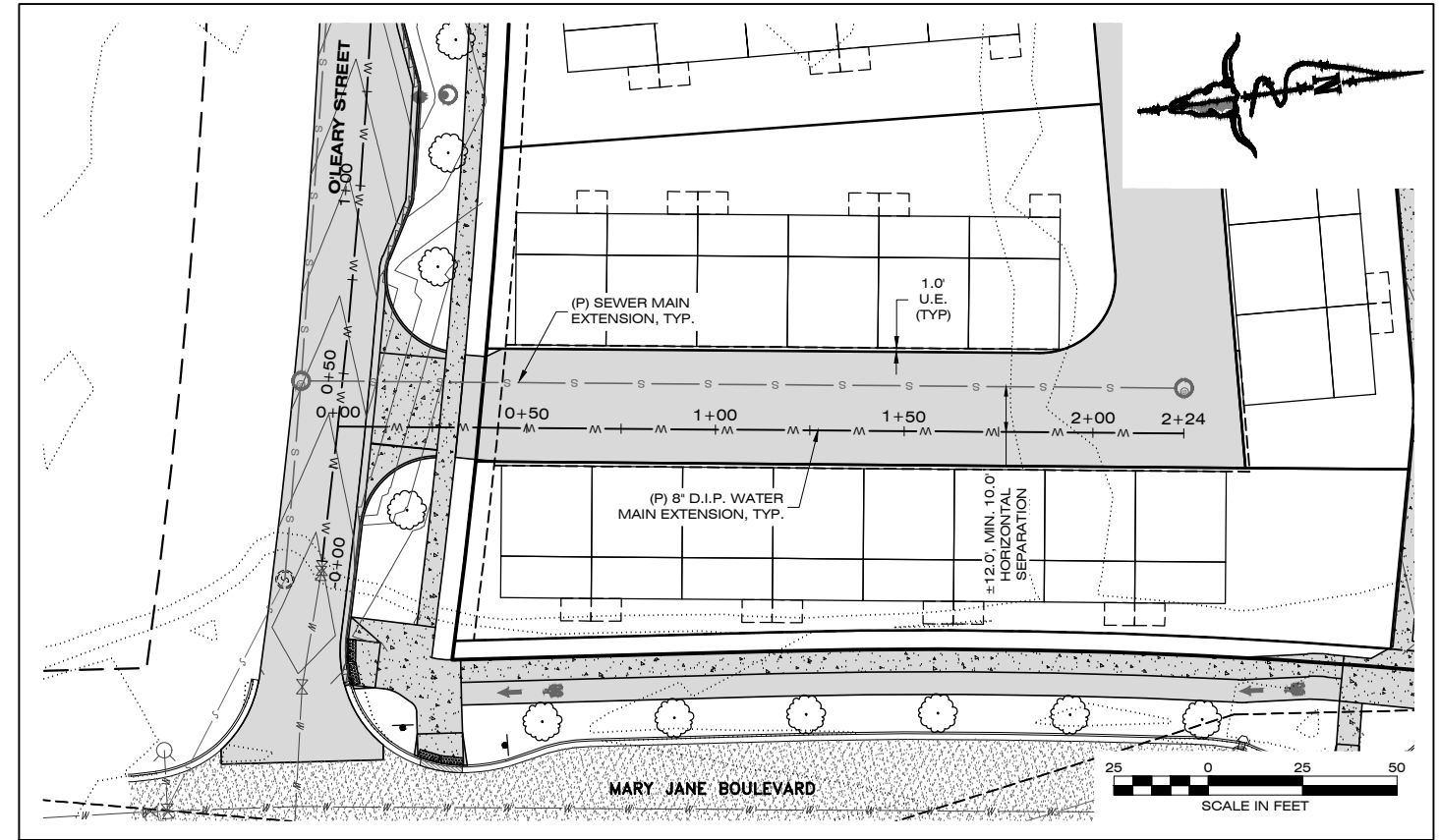
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PROJECT NO. 22000700.01  
 SHEET: 18 OF 25  
**STAGE 2**

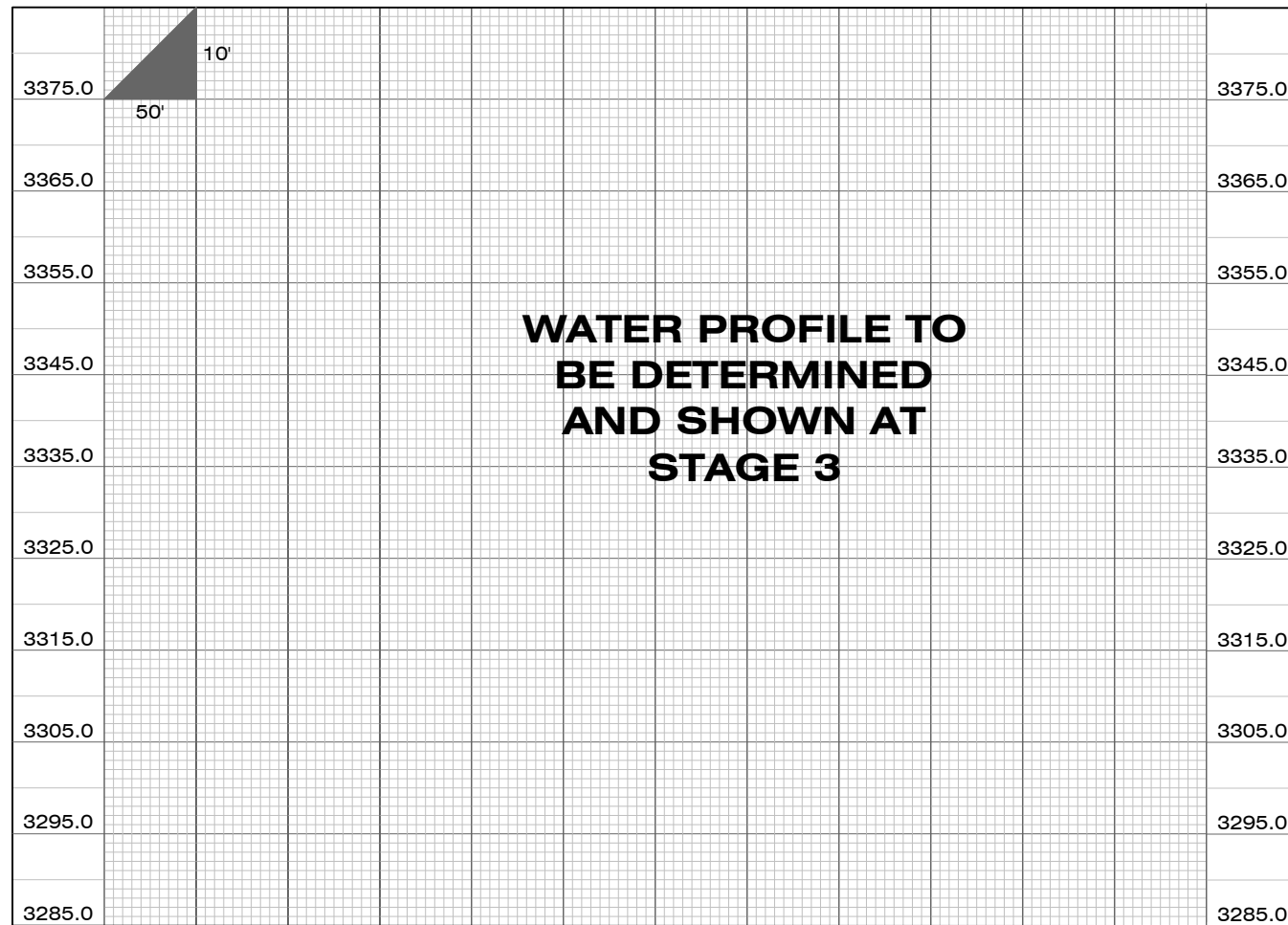
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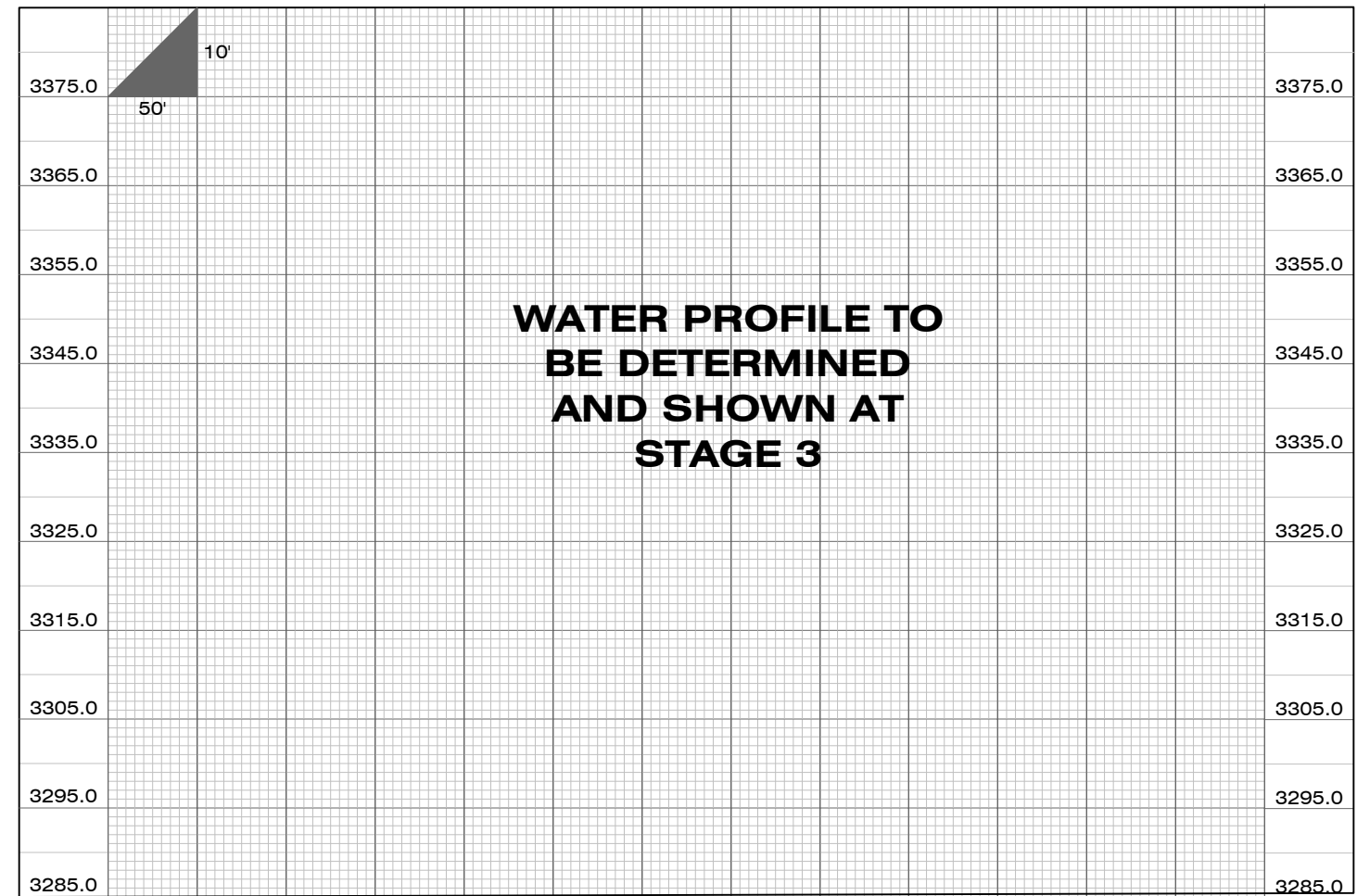
PLAN VIEW



PLAN VIEW



PROFILE VIEW



PROFILE VIEW

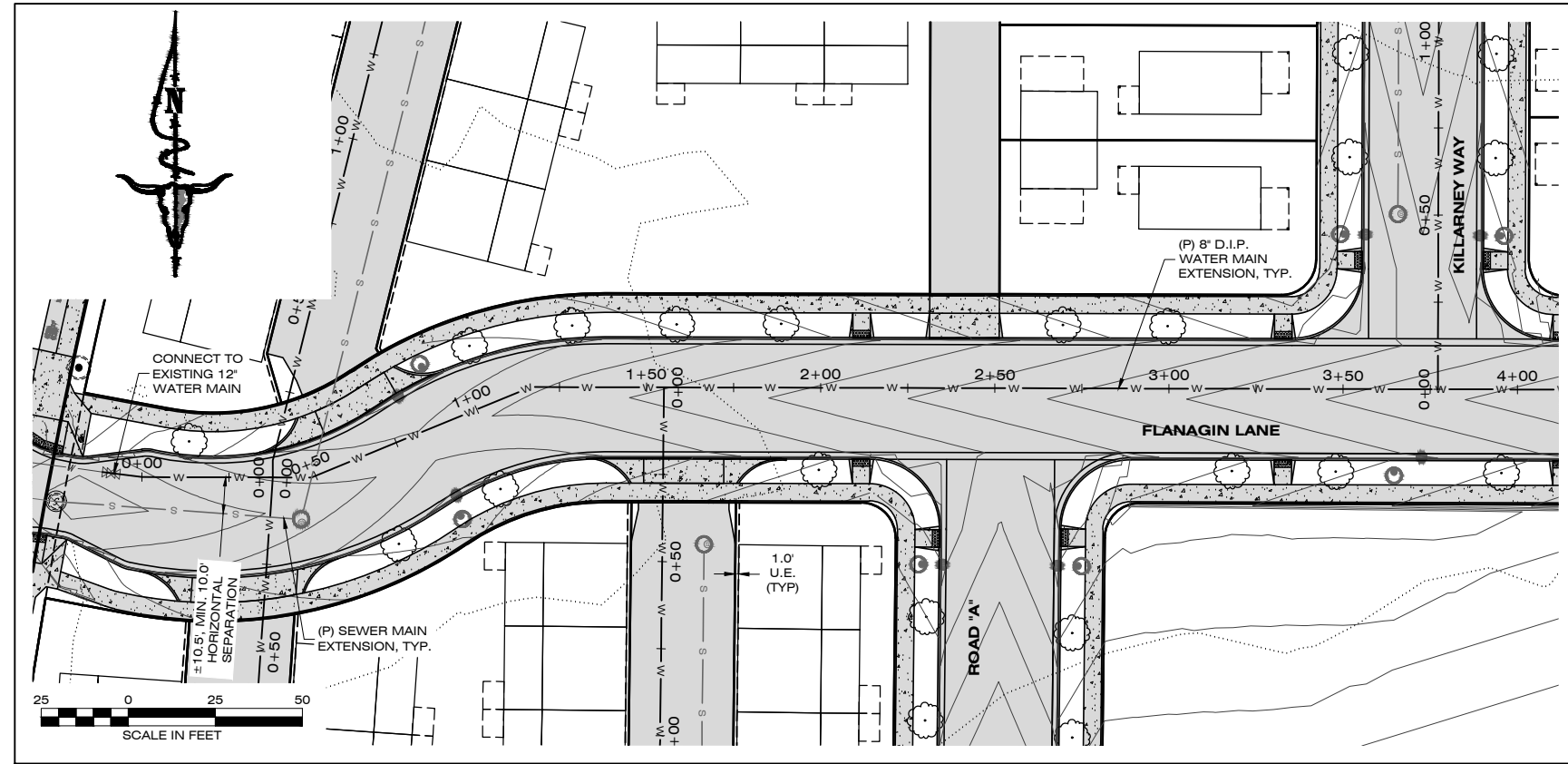
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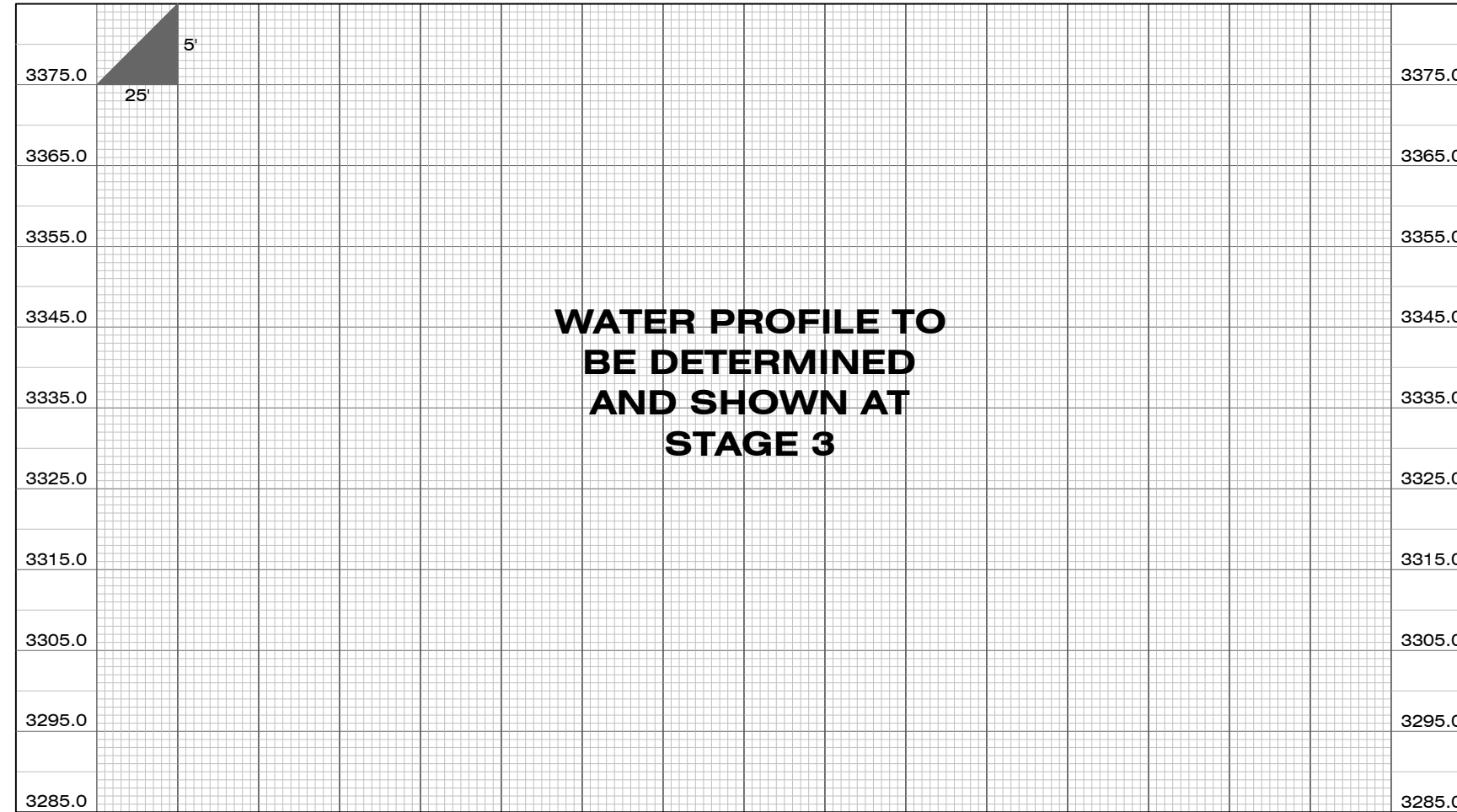
LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET  
 PROJECT NO. 22000700.01  
 SHEET: 19 OF 25

**STAGE 2**



PLAN VIEW



PROFILE VIEW

DATE

REVISIONS

DESIGNED: *AJM*  
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 CHECKED: *AJM*  
 DATE: *APR. 2023*

LOCATION:  
 TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY

PREPARED FOR:  
 MIRAMONTE

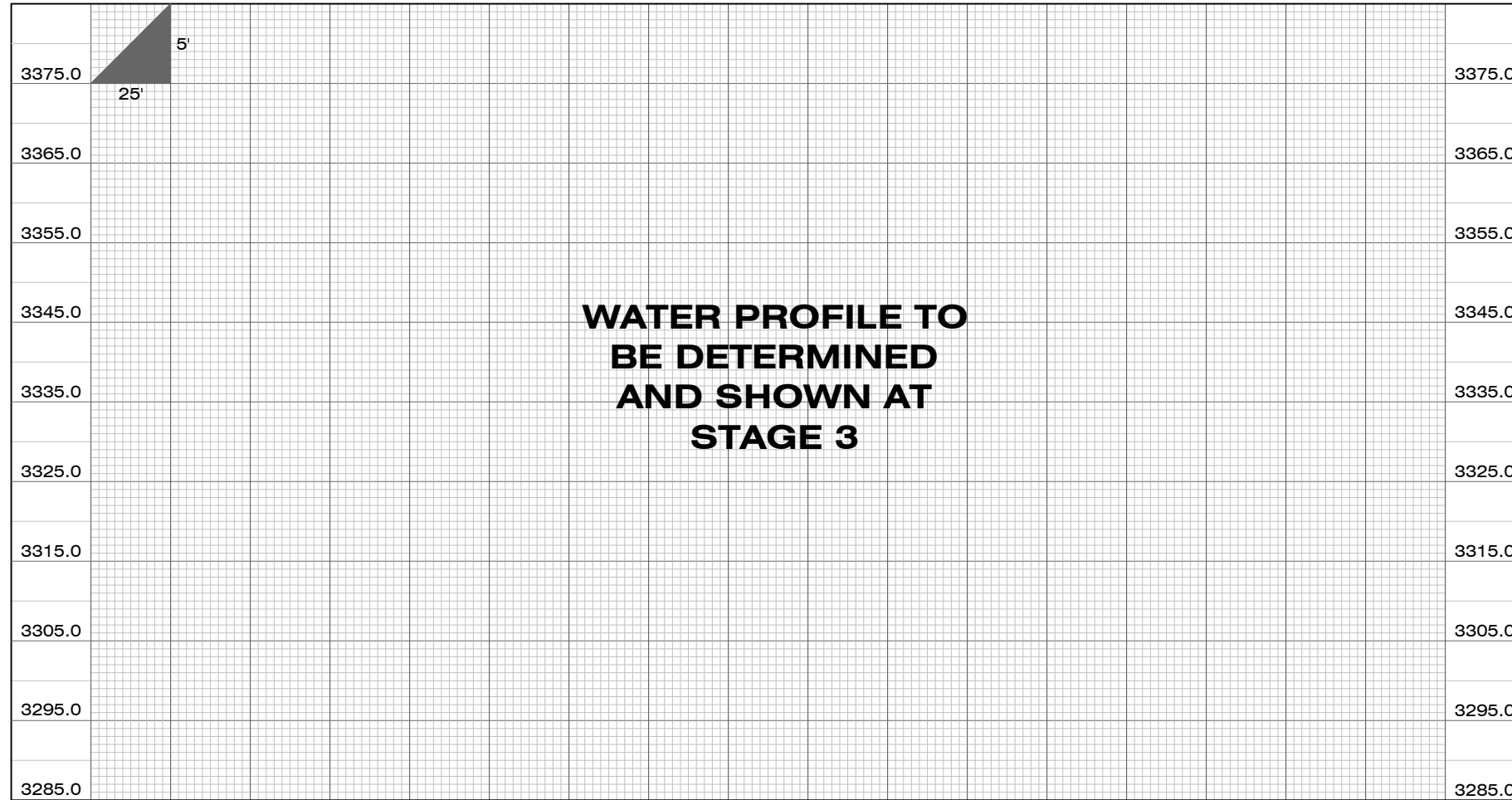
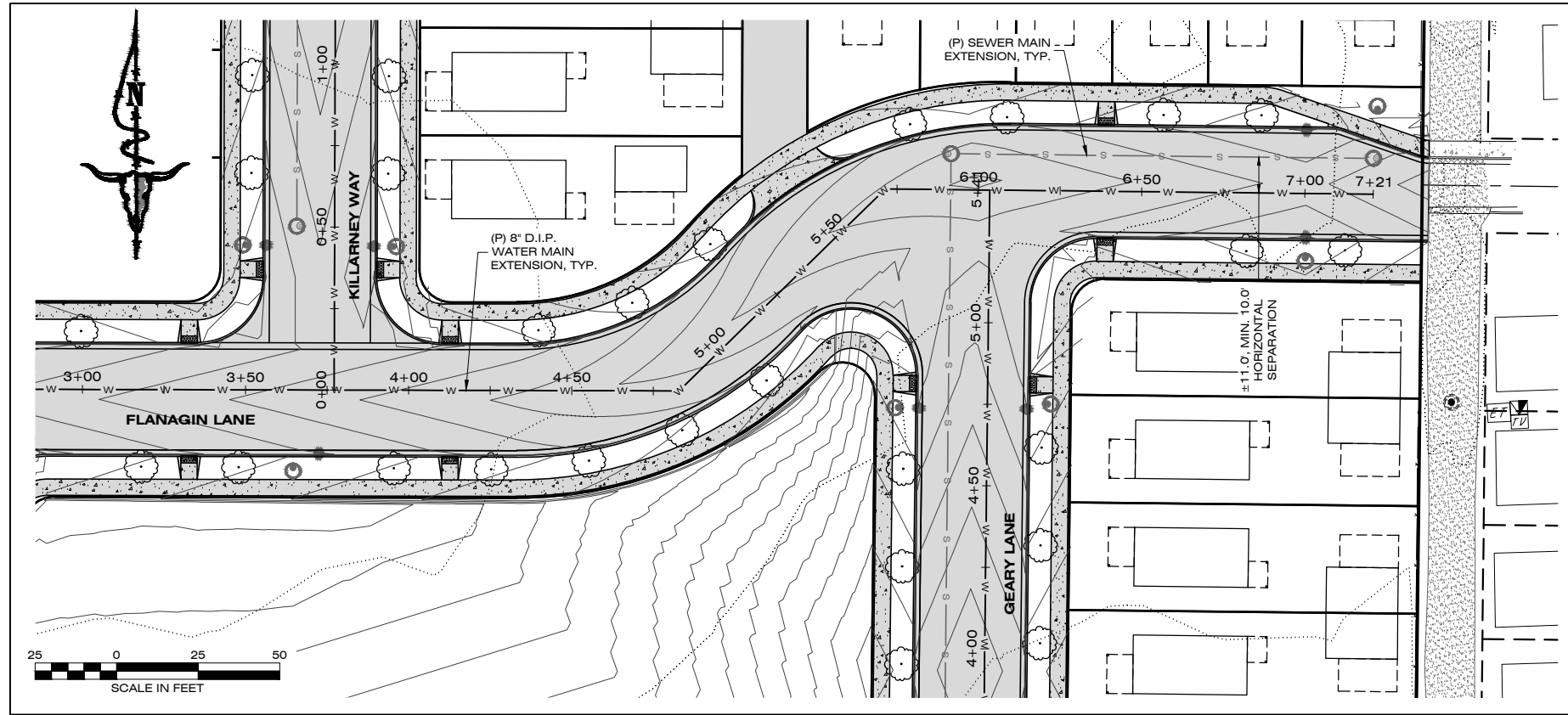
PROJECT NAME  
 MISSOULA LOFT HOMES  
 ON MARY JANE

SHEET TITLE:  
 UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET

PROJECT NO.  
 22000700.01

SHEET:  
 20 OF 25

**STAGE 2**



PROFILE VIEW

DATE

REVISIONS

DESIGNED: *AJM*  
 DRAFTED: *LTM*  
 CHECKED: *AJM*  
 DATE: *APR. 2023*

LOCATION:  
 TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY

PREPARED FOR:  
 MIRAMONTE

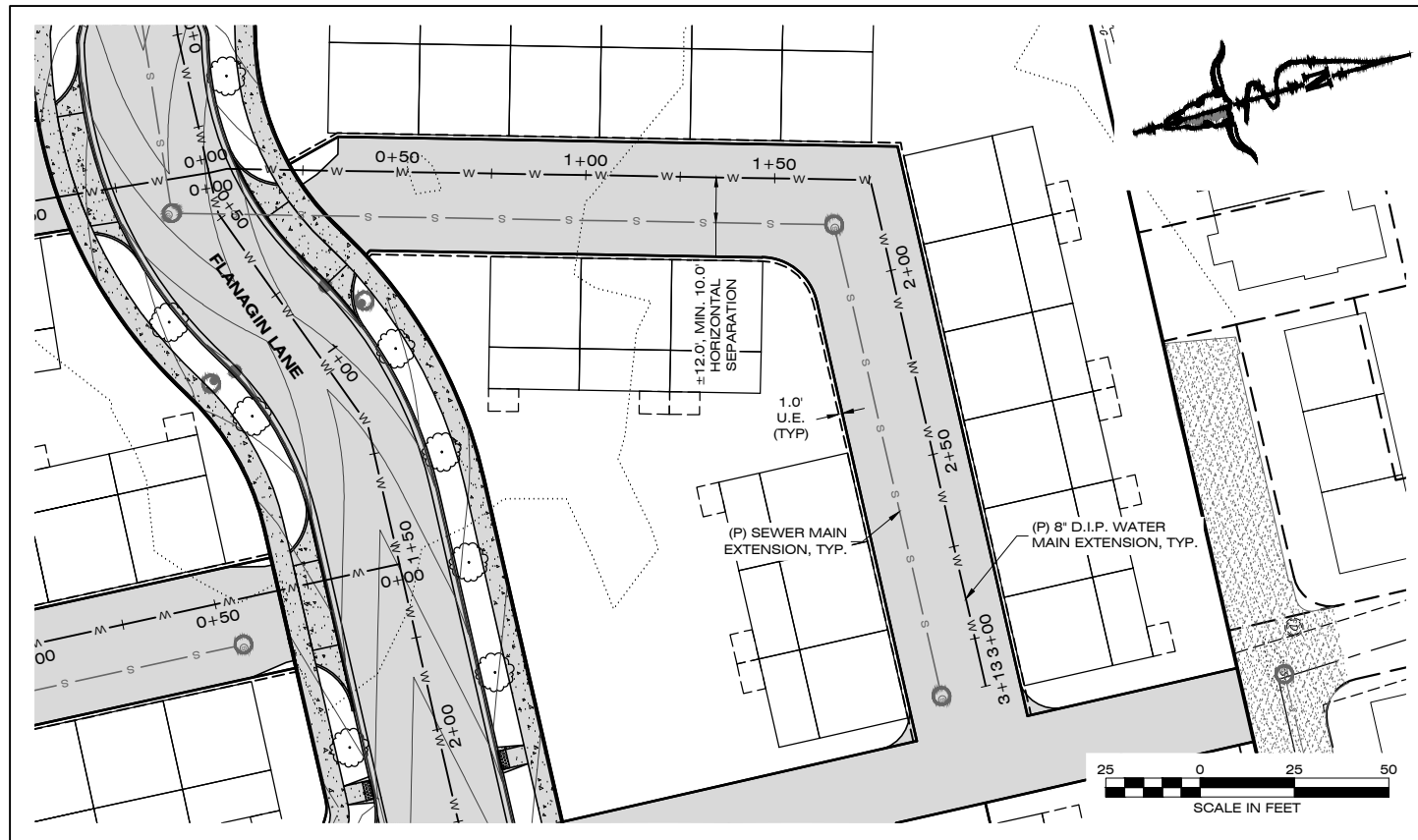
PROJECT NAME  
 MISSOULA LOFT HOMES  
 ON MARY JANE

SHEET TITLE:  
 UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET

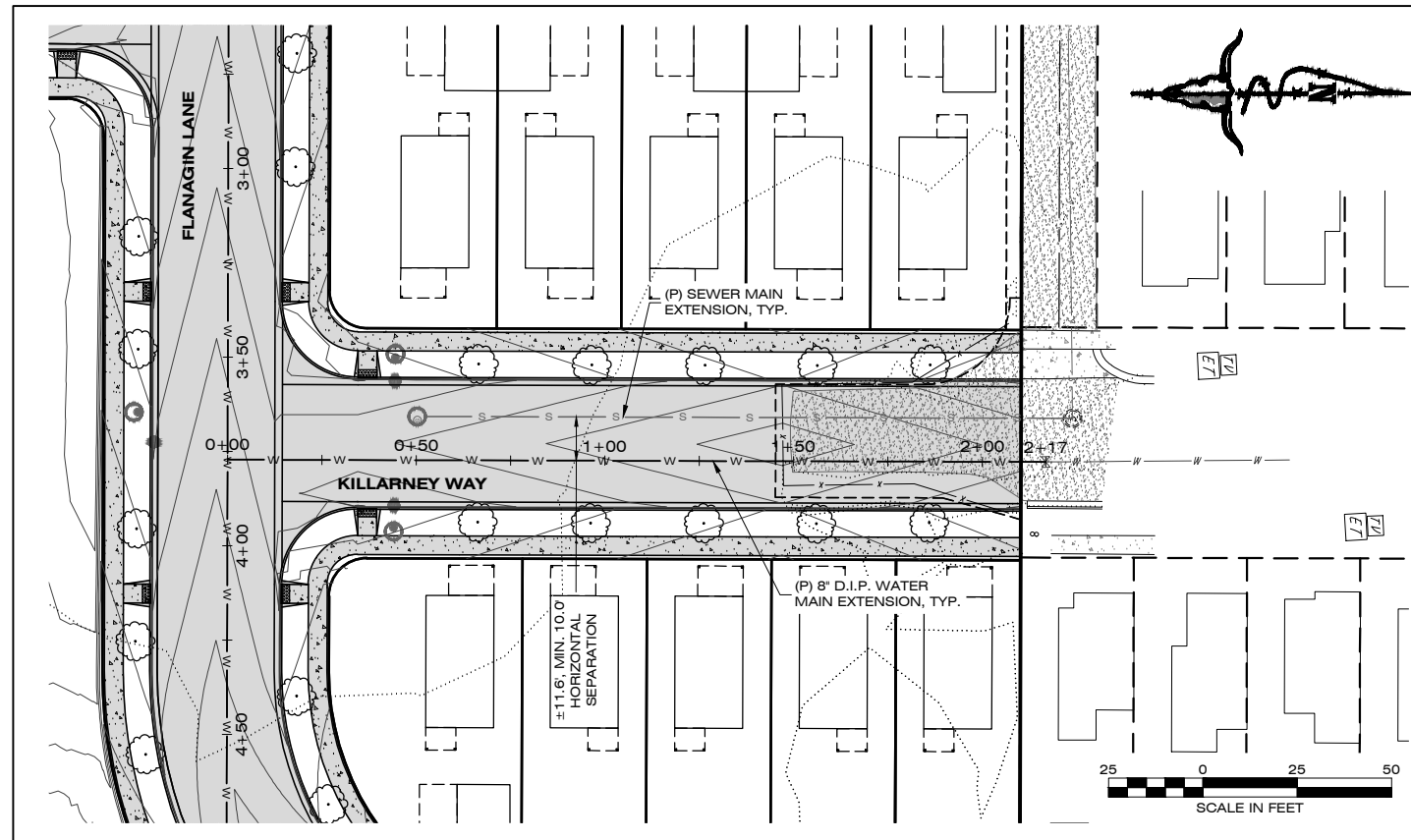
PROJECT NO.  
 22000700.01

SHEET:  
 21 OF 25

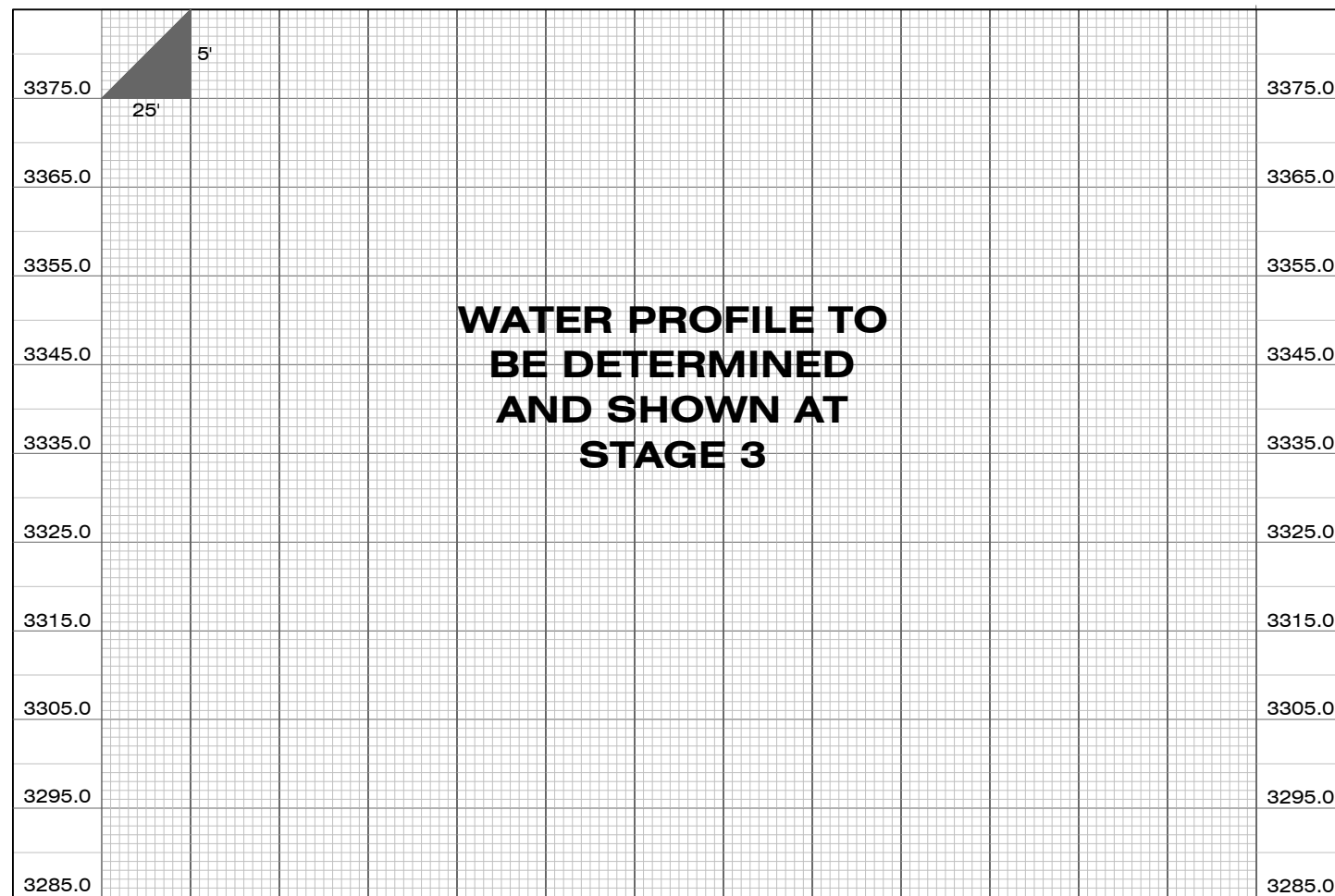
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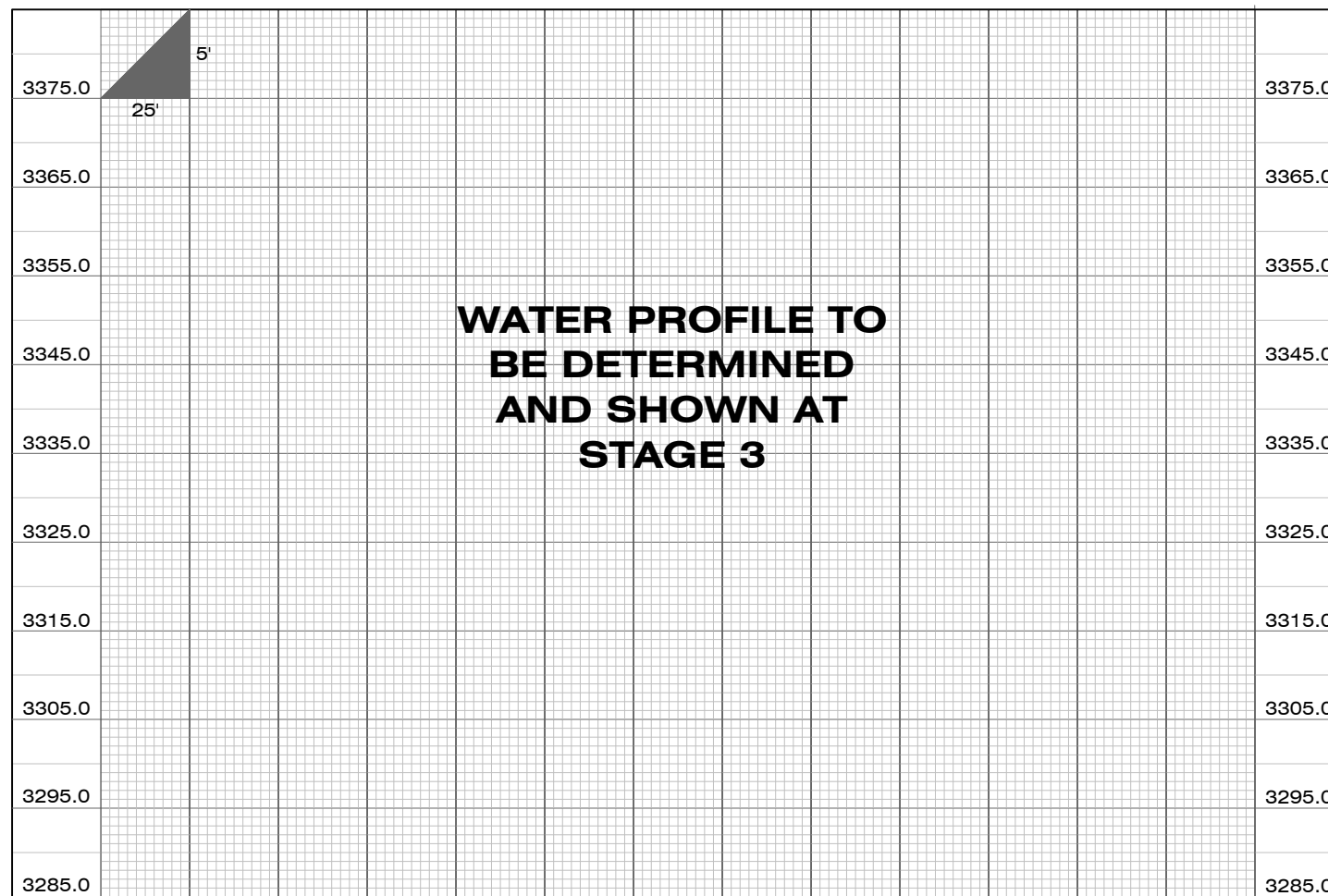
PLAN VIEW



PLAN VIEW

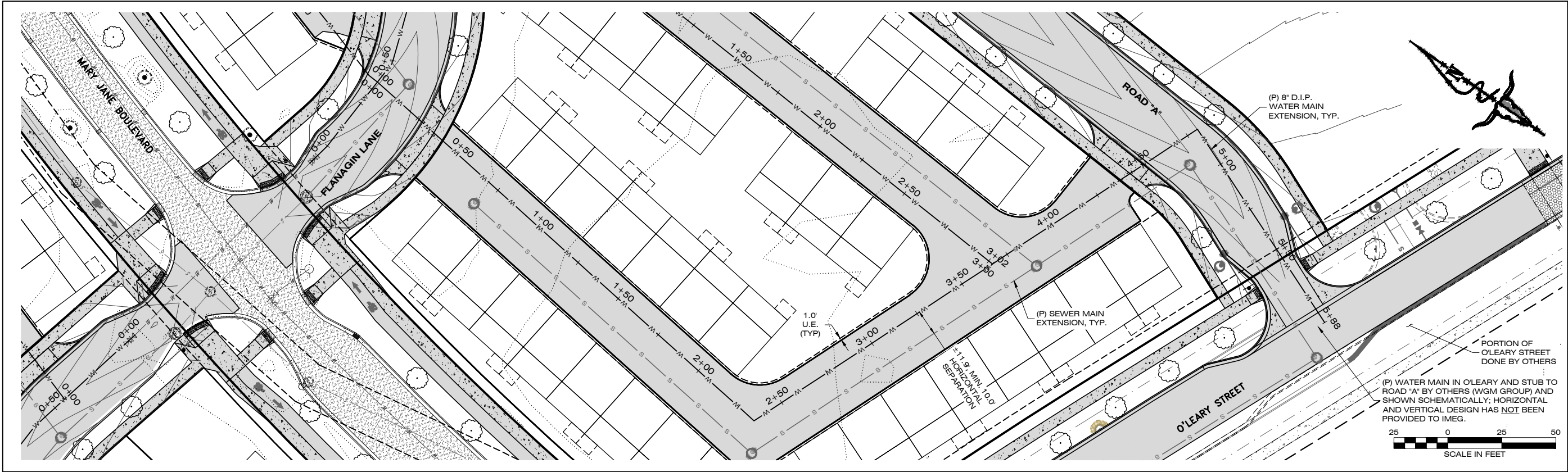


PROFILE VIEW

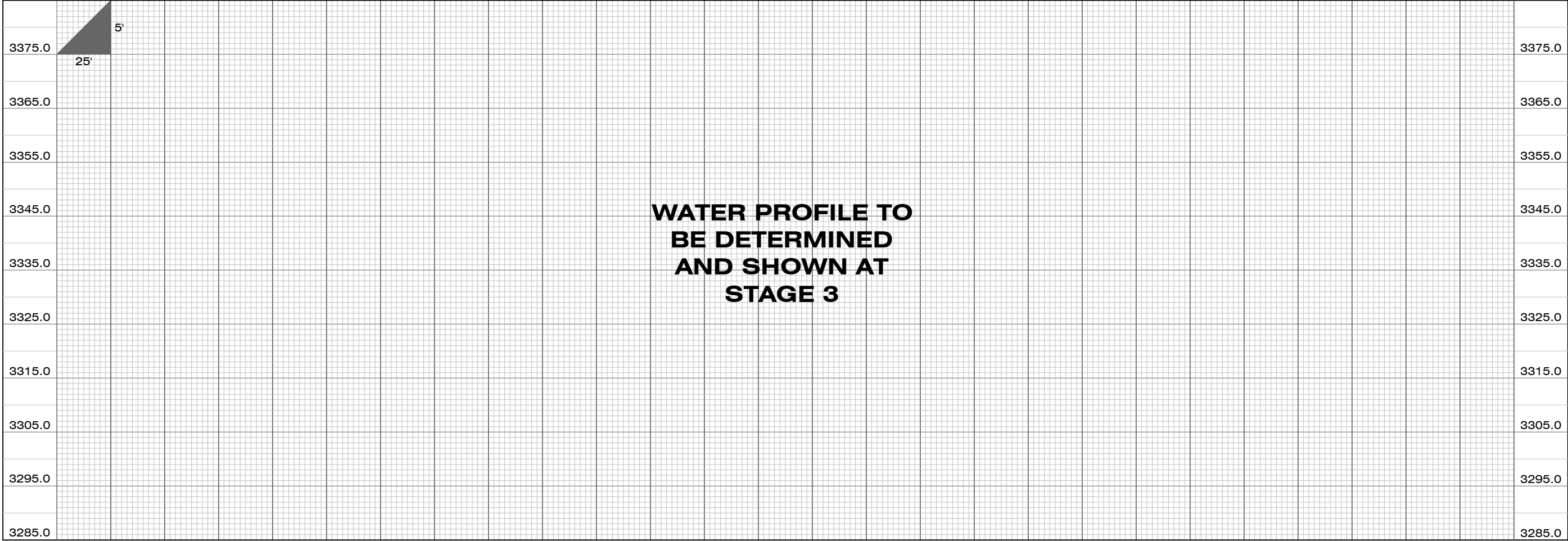


PROFILE VIEW

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PLAN VIEW



PROFILE VIEW

DATE	
REVISIONS	

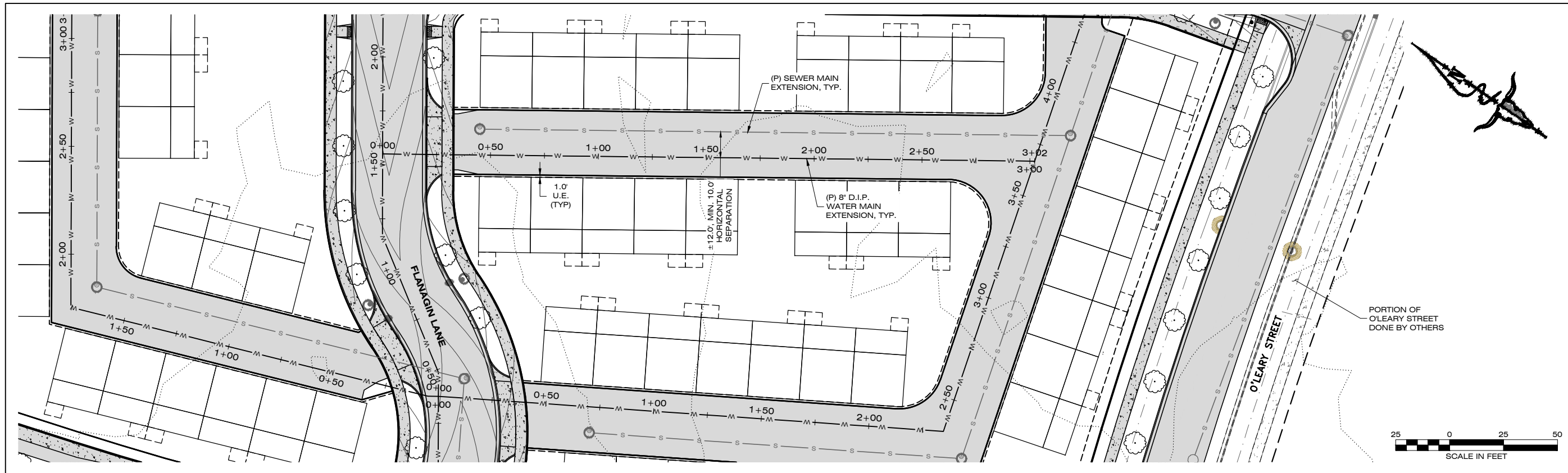
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 DRAFTED: LTM  
 CHECKED: AJM  
 DATE: APR 2023

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY, MONTANA  
 PREPARED FOR: **MIRAMONTE**

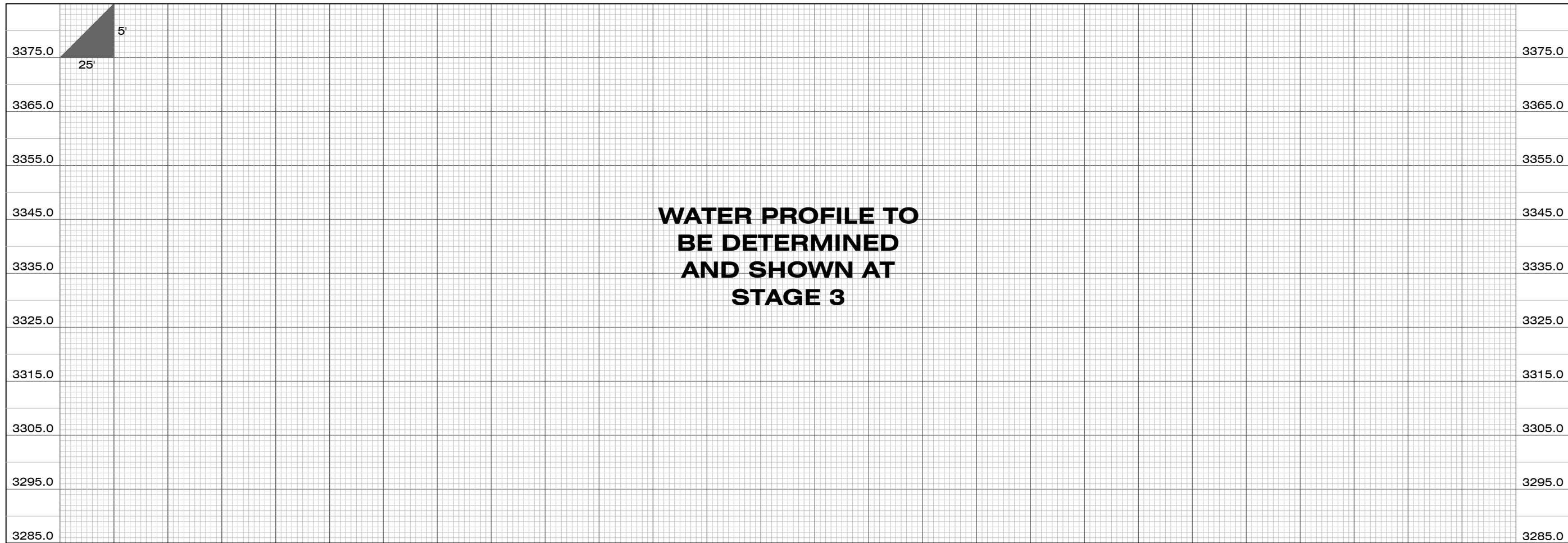
PROJECT NAME: **MISSOULA LOFT HOMES ON MARY JANE**  
 SHEET TITLE: **UTILITY CONSTRUCTION PLANS WATER PLAN AND PROFILE SHEET**

PROJECT NO. 22000700.01  
 SHEET: 23 OF 25

**STAGE 2**



PLAN VIEW



PROFILE VIEW

DATE	
REVISIONS	

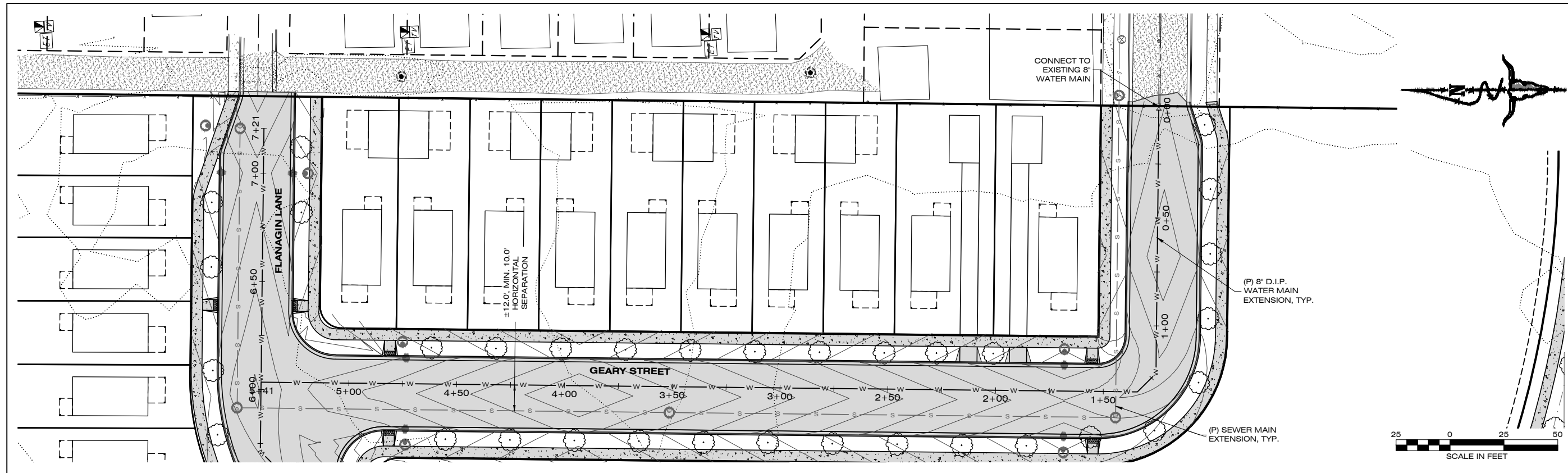
DESIGNED: *AJM*  
 DRAFTED: *LTM*  
 CHECKED: *AJM*  
 DATE: *APR. 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY, MISSOULA COUNTY  
 PREPARED FOR: MIRAMONTE

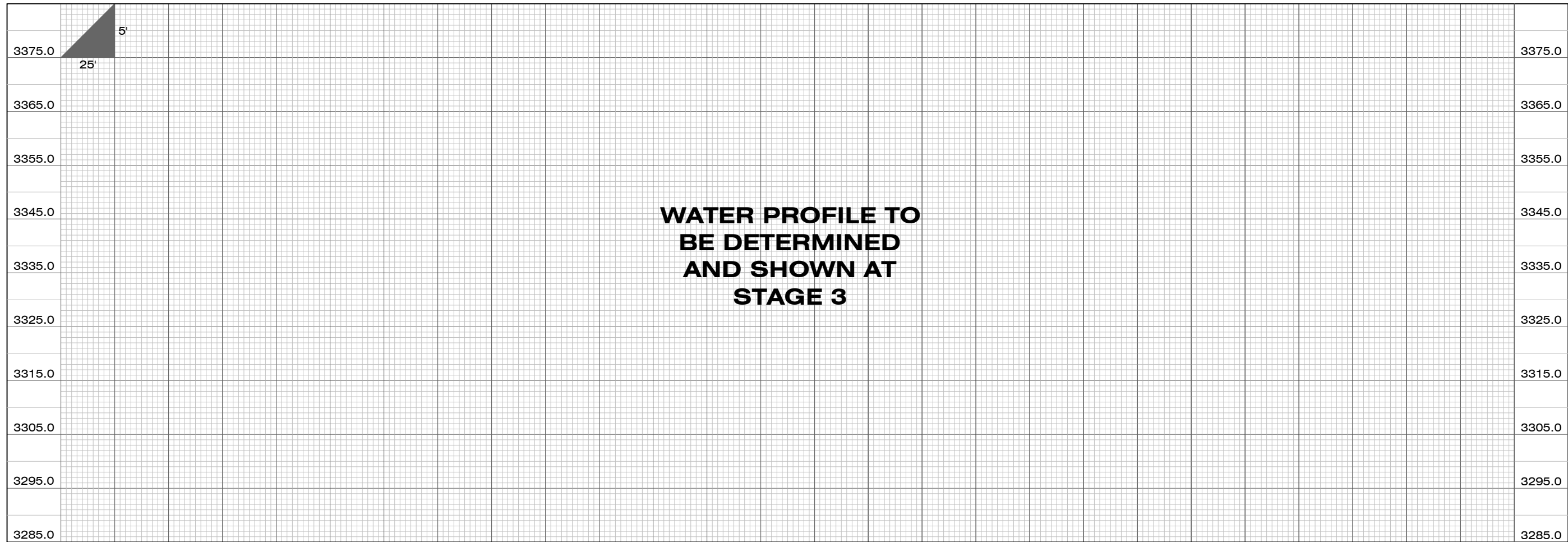
PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET  
 PROJECT NO. 22000700.01  
 SHEET: 24 OF 25

**STAGE 2**





PLAN VIEW



PROFILE VIEW

DATE

REVISIONS

DESIGNED: *AJM*  
 DRAFTED: *LTM*  
 CHECKED: *AJM*  
 DATE: *APR 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY

PREPARED FOR: MIRAMONTE

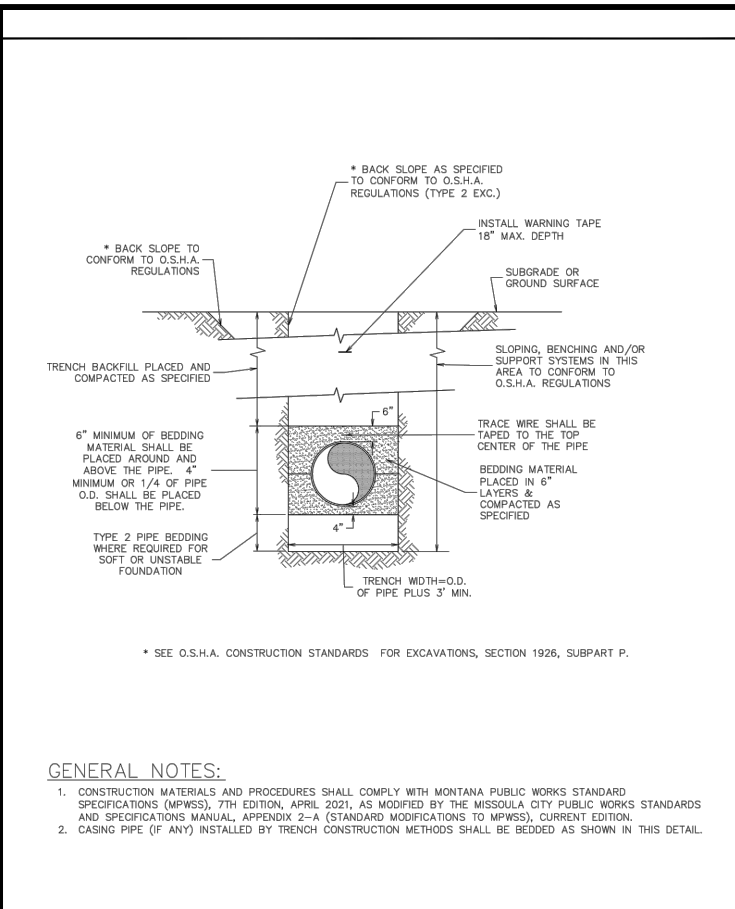
PROJECT NAME: MISSOULA LOFT HOMES  
 ON MARY JANE

SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 WATER PLAN AND PROFILE SHEET

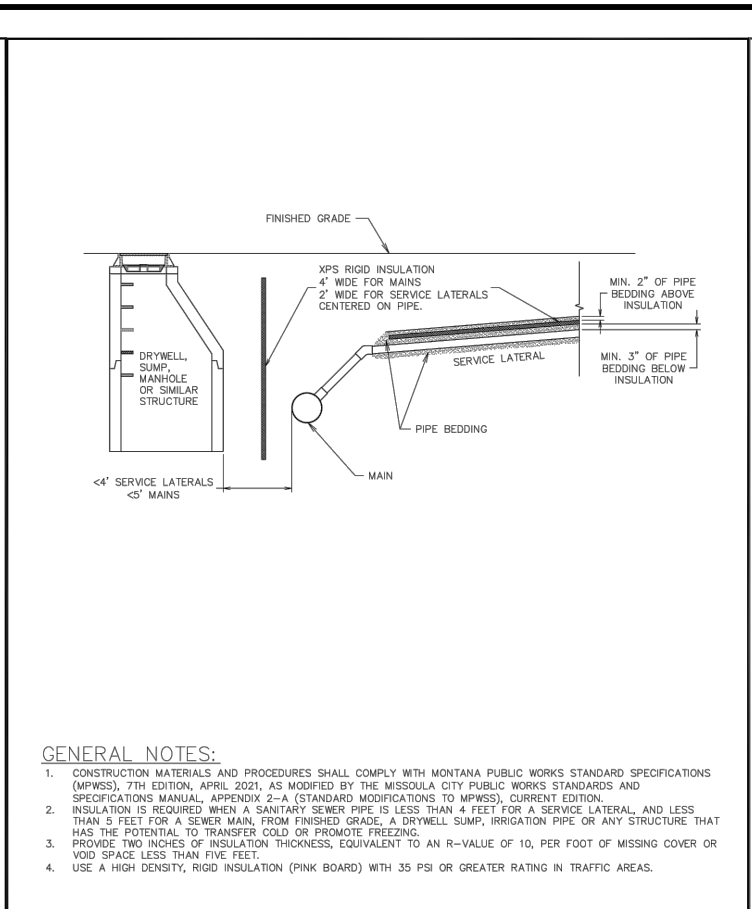
PROJECT NO. 22000700.01

SHEET: 25 OF 25

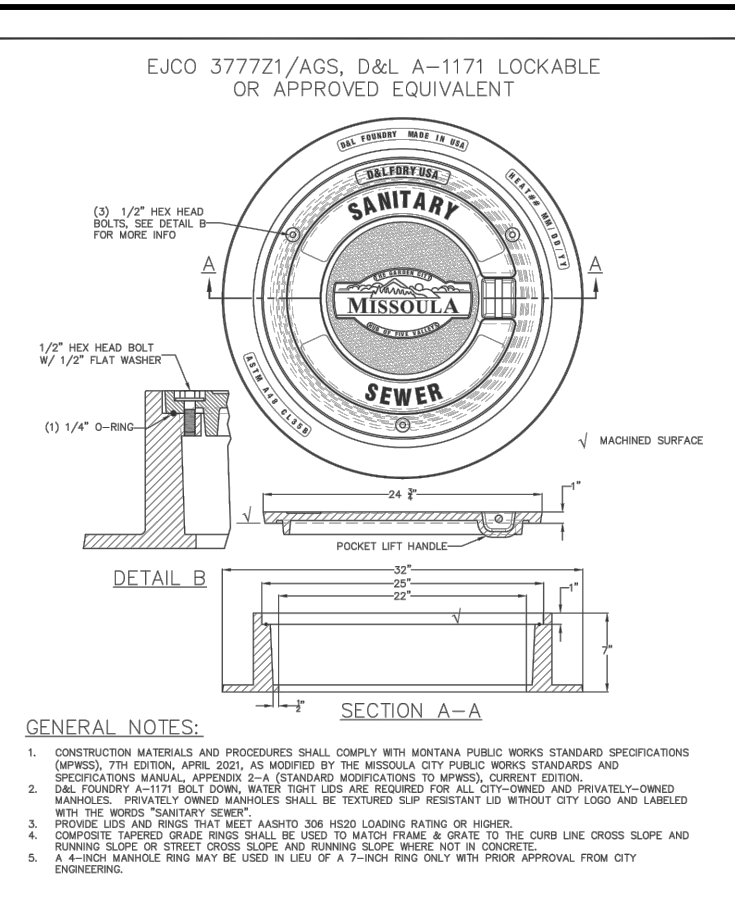
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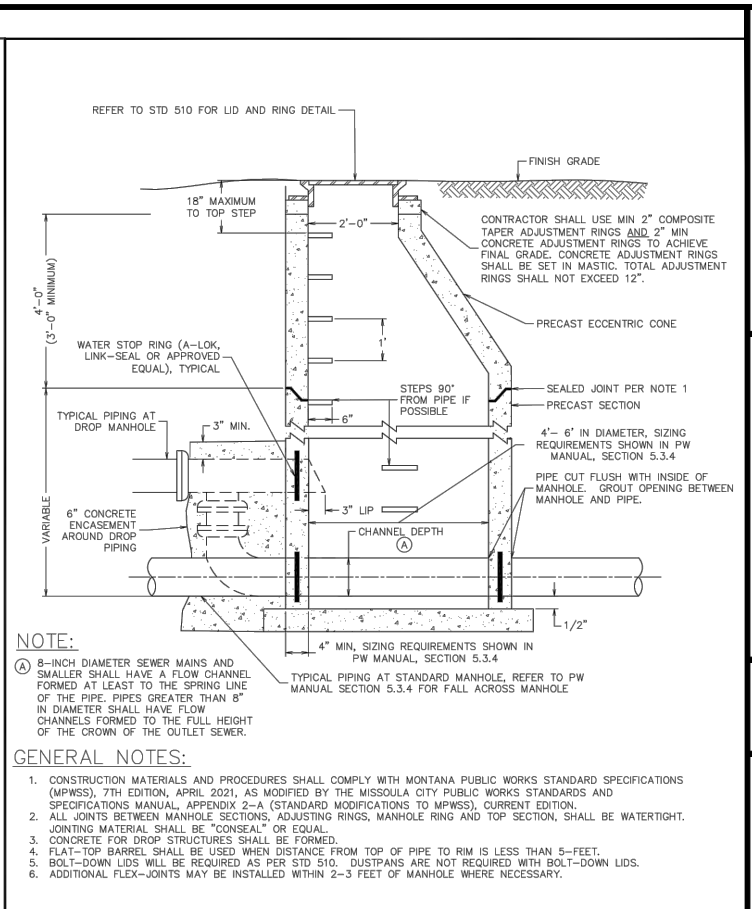
	<b>Typical Utility Trench Detail</b>	Approved By Utilities Engineer Logan McInnis, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 401</b>
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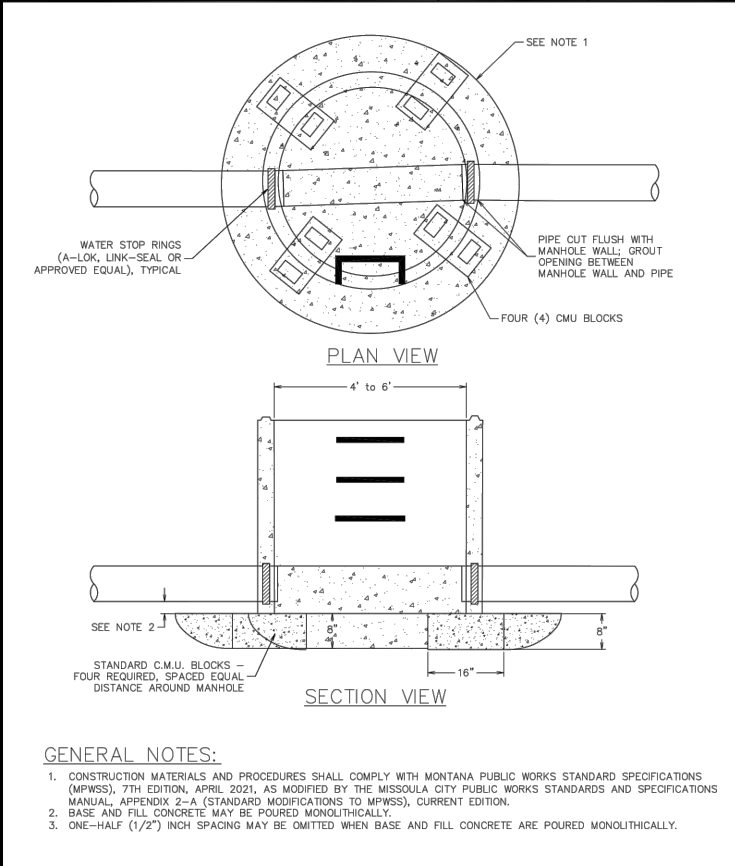
	<b>Sanitary Sewer Service and Main Insulation Requirements</b>	Approved By Utility Project Manager - Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 500</b>
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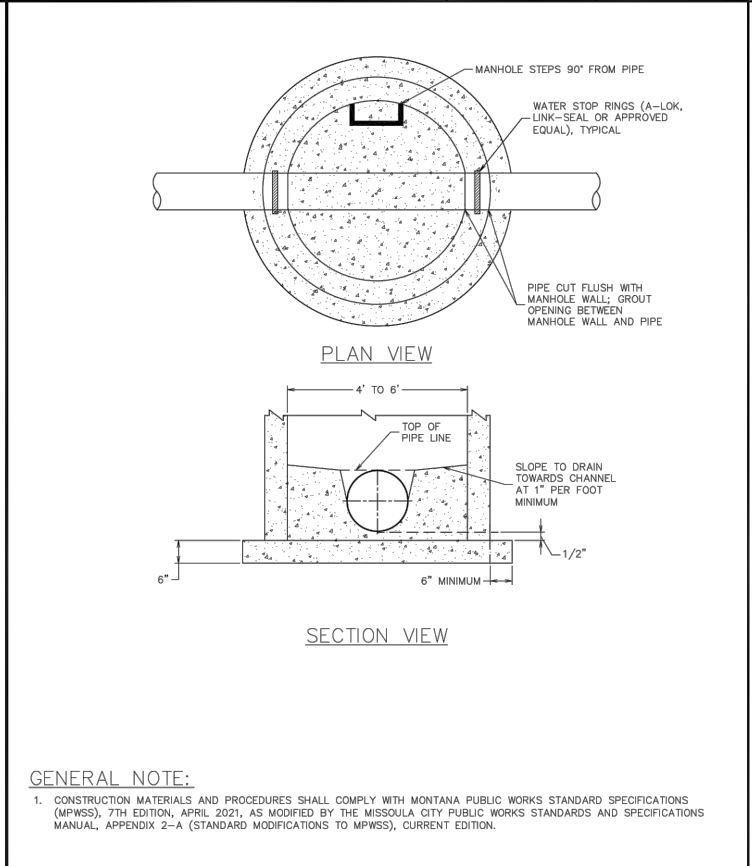
	<b>Sanitary Sewer Lid</b>	Approved By Utility Project Manager - Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 510</b>
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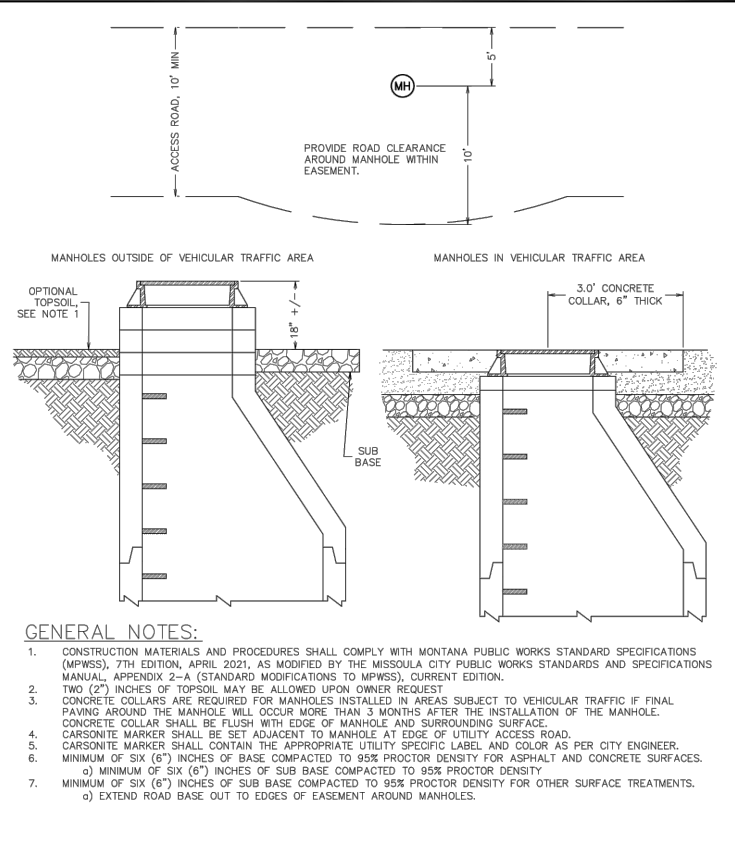
	<b>Sanitary Sewer Manhole (Sheet 1 of 3)</b>	Approved By City Engineer for Utilities Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 512-1</b>
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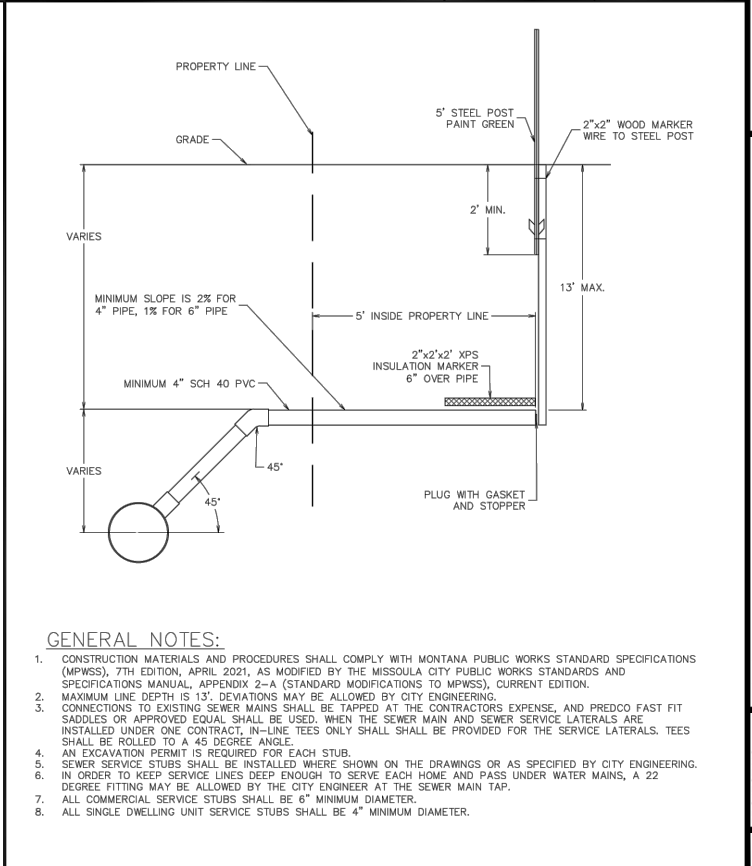
	<b>Sanitary Sewer Manhole - Dog House Base (Sheet 2 of 3)</b>	Approved By City Engineer for Utilities Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 512-2</b>
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	<b>Sanitary Sewer Manhole - Precast Base (Sheet 3 of 3)</b>	Approved By City Engineer for Utilities Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 512-3</b>
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	<b>Utility Access Road</b>	Approved By Utility Project Manager Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 514</b>
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	<b>Standard Sewer Service Stub</b>	Approved By Utility Project Manager Ross Mollenhauer, PE	Adopted: 09/28/2020 Revised: 01/01/2023	<b>STD - 520</b>
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**IMEG**  
1817 SOUTH AVE. W. STE. A PH: 406.721.0142  
MISSOULA, MT FAX: 406.721.5224  
www.imegcorp.com 59801

DATE: \_\_\_\_\_

REVISIONS: \_\_\_\_\_

DESIGNED: *AJM*

DRAFTED: *LTM*

CHECKED: *AJM*

DATE: *APR. 2023*

PROJECT NO: 22000700.01

SHEET: D1 OF D3

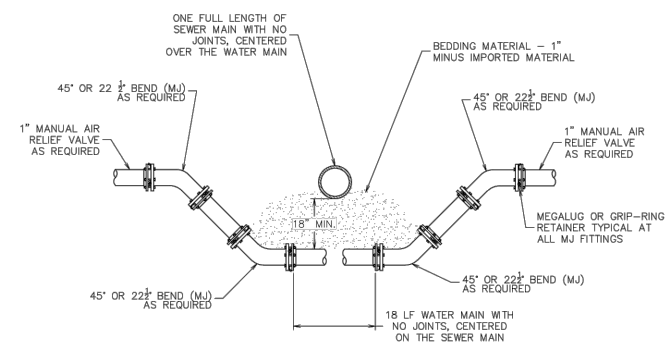
PROJECT NAME: MISSOULA LOFT HOMES ON MARY JANE

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817 MARY JANE BOULEVARD SEC 18, T13, R19W, P. M. M. MISSOULA COUNTY

PREPARED FOR: MIRAMONTE

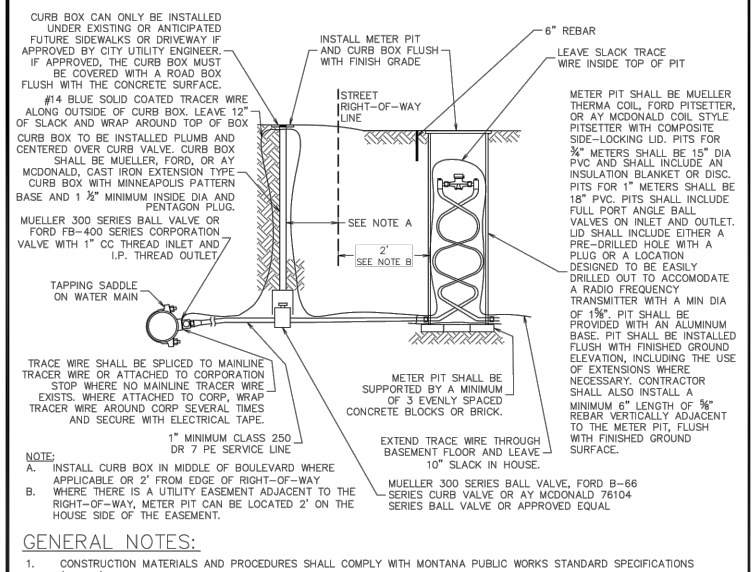
UTILITY CONSTRUCTION PLANS  
DETAIL SHEET

**STAGE 2**



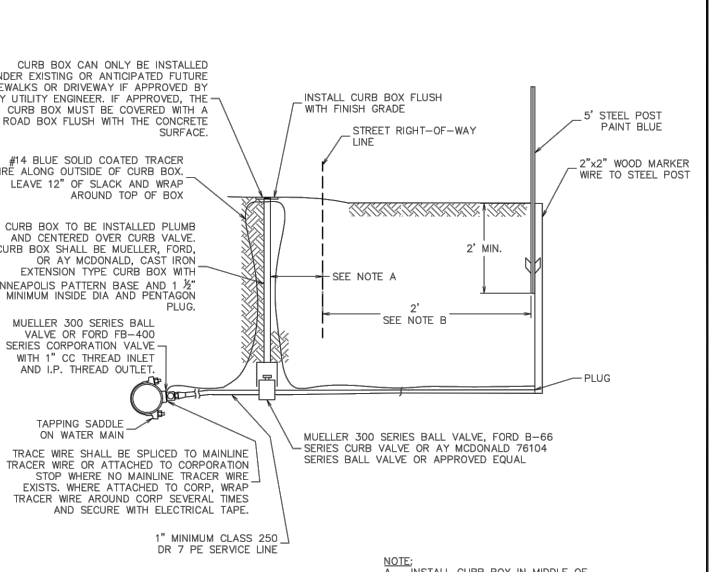
**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.



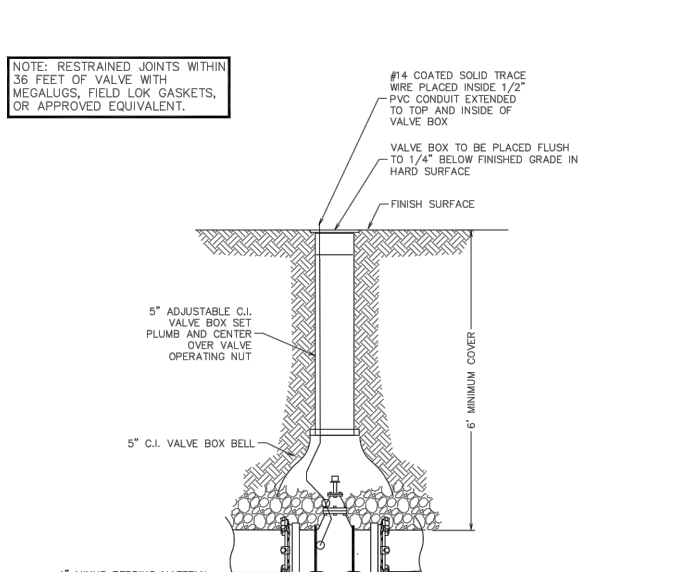
**GENERAL NOTES:**

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- WATER SERVICES SHALL BE BURIED A MINIMUM OF 6" DEEP.
- THIS DETAIL APPROPRIATE FOR 3/4" OR 1" METERS. CONTRACT CITY UTILITY ENGINEER FOR RESIDENTIAL METERS LARGER THAN 1". IRRIGATION METERS LARGER THAN 1" MUST BE INSTALLED IN A CONCRETE PIT PER STD-412 OR OTHER APPROVED DRAWING.
- PLASTIC METER PITS ARE NOT TRAFFIC RATED. METER PITS ARE NOT ALLOWED IN SIDEWALKS OR IN A TRAFFIC AREA UNLESS APPROVED BY THE CITY UTILITY ENGINEER. IF APPROVED BY THE CITY UTILITY ENGINEER, INSTALLATION SHALL HAVE A FLUSH MOUNTED, TRAFFIC RATED CASTING INSTALLED OVER THE PIT. THE CASTING DIA SHALL BE AT LEAST 3" LARGER THAN THE METER PIT. THE METER TRANSMITTER SHALL BE INSTALLED ON THE BUILDING WALL WITH A 1/2" CONDUIT BETWEEN THE PIT AND THE WALL.
- NO OBSTRUCTIONS SHALL BE PLACED WITHIN A MIN 4" RADIUS AROUND THE METER PIT TO ENSURE ACCESS TO THE PIT.
- NO PRVS, CHECK VALVES, OR BACKFLOW DEVICES ALLOWED IN METER PIT.
- THIS DIAGRAM IS NOT PROJECT SPECIFIC AND IS NOT INTENDED TO BE A DESIGN DRAWING. THE OWNER IS RESPONSIBLE TO COMPLY WITH ALL APPLICABLE BUILDING CODES. THIS DETAIL MAY CHANGE AT ANY TIME AND IT IS THE OWNER'S RESPONSIBILITY TO OBTAIN THE MOST CURRENT VERSION OF THIS AND OTHER CITY REQUIREMENTS.
- IF PROPERTY DOES NOT FRONT A STREET WITH A WATER MAIN, CONTACT CITY FOR SPECIFIC REQUIREMENTS RELATED TO EASEMENTS AND METER PIT LOCATIONS.
- WHERE NEW WATER SERVICE LINE TRANSITIONS TO EXISTING GALVANIZED SERVICE LINE, THE NEW TRACER WIRE SHOULD BE ATTACHED TO THE GALVANIZED PIPE USING A CHRISTY'S OR APPROVED EQUAL UL APPROVED BRONZE GROUNDING CLAMP SUITABLE FOR DIRECT BURIAL.
- IF METER PIT IS INSTALLED TOO LOW THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE FOR THE PURCHASE AND INSTALLATION OF A METER RESETTER TO BRING TO FINISHED GRADE.



**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
- WATER SERVICES SHALL BE BURIED A MINIMUM OF 6" DEEP.
- FOR WATER SERVICES STUBS LARGER THAN 2" SEE CITY STANDARD DETAIL STD-413.
- IF PROPERTY DOES NOT FRONT A STREET WITH A WATER MAIN, CONTACT CITY FOR SPECIFIC REQUIREMENTS RELATED TO EASEMENTS.
- SERVICE LINE SHALL END AT WOOD POST. NO ABOVE GROUND WHIPS ALLOWED. IT IS THE INSTALLER'S RESPONSIBILITY TO REMOVE AIR FROM THE SERVICE LINES AS NECESSARY.
- WATER SERVICE STUBS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED BY CITY ENGINEERING.



**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

**Typical Water Main Crossing @ Sewer Mains**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 402**

**Typical Residential Water Service Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 404A**

**Typical Residential Water Service Stub Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 404B**

**Valve Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 405**

**STANDARD THRUST BLOCK DIMENSIONS**

ANCHOR ROD SIZE	VALVE SIZE	100 PSI			150 PSI			200 PSI			250 PSI		300 PSI	
		"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"		
3/4"	6" & 8"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"		
3/4"	10"	2'-0"	2'-0"	2'-0"	2'-6"	2'-6"	2'-0"	2'-9"	2'-6"	2'-6"	3'-7"	3'-0"		
3/4"	12"	2'-3"	2'-0"	2'-0"	3'-0"	3'-0"	2'-8"	3'-5"	3'-0"	3'-0"	4'-3"	3'-0"		
1"	14"	2'-3"	2'-0"	2'-4"	3'-5"	3'-0"	3'-0"	4'-6"	3'-0"	3'-0"	4'-9"	4'-0"		
1 1/8"	16"	3'-0"	3'-0"	2'-11"	4'-4"	3'-0"	3'-0"	4'-1"	4'-0"	4'-0"	5'-1"	4'-0"		
1 1/4"	18"	3'-8"	3'-0"	3'-0"	5'-5"	3'-0"	3'-0"	5'-1"	4'-0"	4'-0"	6'-4"	4'-0"		
1 3/8"	24"	4'-4"	4'-0"	4'-0"	6'-5"	4'-0"	4'-0"	6'-6"	5'-0"	5'-0"	7'-8"	6'-0"		

NOTE: PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURE IN SYSTEM.

**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
- DIAGRAM DEPICTS GATE VALVES ONLY. VALVES 12 INCH AND LARGER TO BE BUTTERFLY, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS WITH BLOCKS CENTERED UNDER LOAD BEARING PORTION OF VALVE.
- STEEL CABLE (3/4" MINIMUM DIA. OR AS APPROVED BY THE ENGINEER) W/ANCHOR BOLTS MAY BE SUBSTITUTED FOR ANCHOR ROD.

**THRUST BLOCK DETAIL**

ANCHOR ROD (ASTM A615, GRADE 60 REBAR) OR APPROVED CABLES LOOPED ON BOTH ENDS.

CONCRETE THRUST BLOCK.

ANCHOR ROD (ASTM A615, GRADE 60 REBAR).

**TEE** **TEE (PLUGGED)** **BEND**

**REDUCER** **UNDISTURBED EARTH (TYP.)**

**DIMENSIONS FOR THRUST BLOCKING**

FITTING SIZES	TEES & PLUGS		90° BEND		45° BEND & WYES		REDUCERS & 22 1/2° BEND	
	A	B	A	B	A	B	A	B
4" & 6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"	1'-9"	0'-10"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"	1'-9"	1'-6"
10"	4'-0"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"	2'-2"	1'-11"
12"	4'-0"	3'-10"	4'-8"	3'-8"	3'-3"	2'-7"	2'-3"	3'-3"
16"	4'-6"	4'-0"	5'-0"	4'-8"	4'-0"	3'-0"	3'-0"	2'-6"
20"	5'-0"	5'-0"	7'-0"	5'-0"	4'-6"	4'-0"	3'-0"	3'-0"
24"	6'-10"	5'-0"	10'-0"	5'-0"	5'-8"	4'-6"	3'-8"	3'-8"

**GENERAL NOTES:**

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- THIS TABLE IS BASED ON 2000 PSF SOIL BEARING PRESSURE AND 150 PSI MAIN PRESSURE.
- WRAP ALL FITTINGS WITH POLYETHYLENE PRIOR TO PLACING CONCRETE.

**HYDRANT DETAIL**

5" STORZ CONNECTION AND CAP

#14 COATED SOLID TRACE WIRE

SET BURY LINE TO FINISH GRADE

FINISH SURFACE

HYDRANT SHALL BE PLACED A MINIMUM OF 2' FROM CURB

2' X 2' X 6" CONCRETE PAD TO BE INSTALLED 6" BELOW GRADE

6" MIN. COVER

8"x8"x16" BLOCK

NOTE: ENSURE WEEP HOLES ARE CLEAR OF CONCRETE MATERIAL IF THRUST BLOCK IS UTILIZED. NO POLYETHYLENE WRAP COVERING WEEP HOLE. MUST KEEP DRAIN HOLES OPEN.

**GENERAL NOTES:**

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- DUCTILE IRON PIPE, INCLUDING HYDRANT BARREL, SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE.
- IF MAIN IS BELOW OR ABOVE STANDARD DEPTH, USE BENDS AS REQUIRED TO INSURE THAT HYDRANT IS PLACED ABOVE GRADE AS SHOWN. PLACE BENDS BETWEEN HYDRANT VALVE & MAIN TO RAISE VALVE TO NORMAL DEPTH WHEN MAIN IS BELOW DEPTH SHOWN.
- ALL JOINTS ON HYDRANT LEADS SHALL BE RESTRAINED.
- HYDRANT EXTENSIONS WILL ONLY BE ALLOWED WITH WRITTEN PERMISSION FROM MISSOULA WATER.

**Valve Thrust Blocking Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 406**

**Thrust Block Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 407**

**Hydrant Detail**

Approved By: *Logan McInnis*, PE  
 Adopted: 09/28/2020  
 Revised: 01/01/2023  
**STD - 408**

**IMEG**  
 1817 SOUTH AVE. W. STE. A PH: 406.721.0142  
 MISSOULA, MT FAX: 406.721.5224  
 www.imegcorp.com 59801

DATE: \_\_\_\_\_  
 REVISIONS: \_\_\_\_\_  
 DESIGNED: *AJM*  
 DRAFTED: *LTM*  
 CHECKED: *AJM*  
 DATE: *APR 2023*

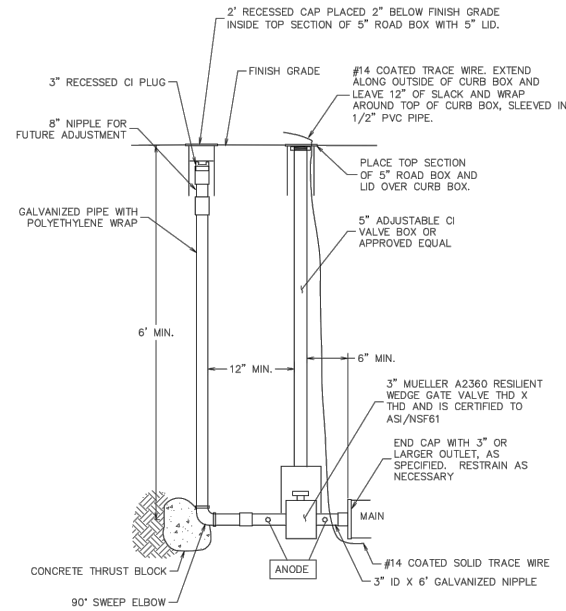
LOCATION: TRACT 5 AND TRACT 2 OF COS 6817  
 MARY JANE BOULEVARD  
 SEC 18, T13, R19W, P. M. M.  
 MISSOULA COUNTY

PROJECT NAME: MISSOULA LOFT HOMES ON MARY JANE  
 SHEET TITLE: UTILITY CONSTRUCTION PLANS  
 SHEET NO.: 22000700.01  
 SHEET: D2 OF D3

PREPARED FOR: MIRAMONTE

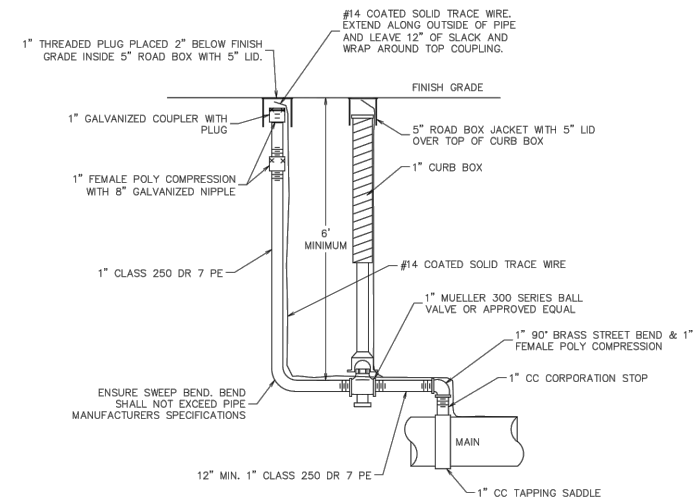
STAGE 2

NOTE: NO UNRESTRAINED JOINTS WITHIN 36 FEET OF BLOWOFF



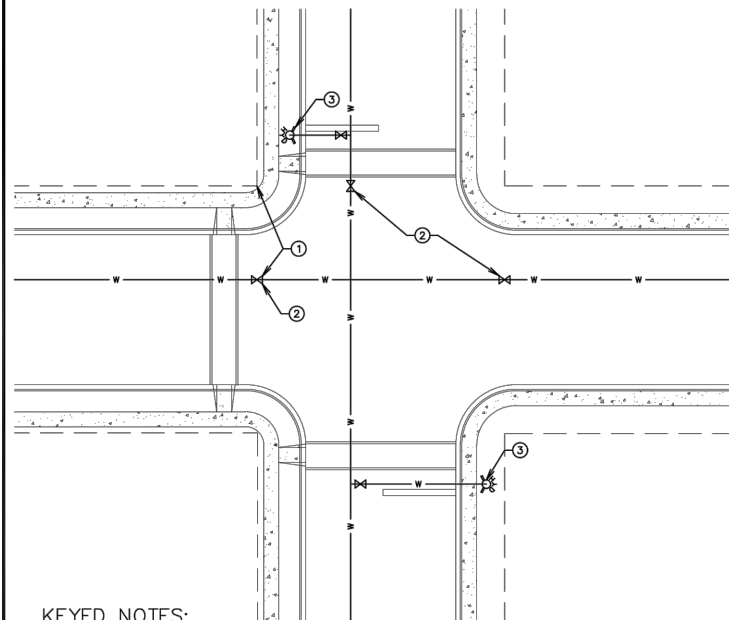
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- ROAD BOXES TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE.



**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
- WHERE AIR RELIEF VALVES (ARVs) ARE IDENTIFIED ON THE PLANS AS TEMPORARY, TRACER WIRE IS NOT REQUIRED AND ALL MATERIALS CAN BE SALVAGED AFTER THE CORP IS CLOSED, THE LINE IS CAPPED WITH A BRASS CAP AND FITTINGS ARE WRAPPED IN 10-MIL TAPE.
- ROAD BOX TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE.

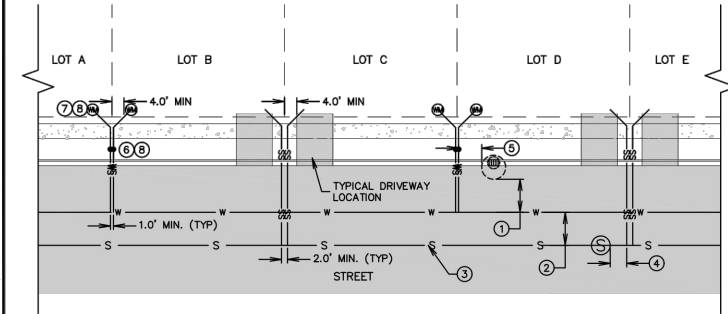


**KEYED NOTES:**

- WATER MAIN VALVES SHALL BE MECHANICAL JOINT AND SHOULD BE PLACED IN LINE WITH THE RIGHT-OF-WAY LINES BUT NO FURTHER THAN 15 FEET FROM THE CURB FC AND NOT WITHIN A CROSSWALK.
- VALVES SHALL BE INSTALLED IN AT LEAST TWO DIRECTIONS AT EACH TEE AND IN AT LEAST THREE DIRECTIONS AT EACH CROSS. VALVES SHALL HAVE MECHANICAL JOINTS. VALVES SHALL BE PLACED SO THAT ONLY A SINGLE FIRE HYDRANT IS OUT OF SERVICE WHEN THE MAIN IS SHUTDOWN.
- FIRE HYDRANTS SHOULD BE LOCATED 3 FT FROM EDGE OF LAYDOWN AND A MINIMUM OF 5 FT FROM VALVE. PUMPER NOZZLE NUT SHALL BE A MINIMUM OF 2 FT FROM THE TOP BACK OF CURB OR SIDEWALK WHERE SIDEWALK IS LOCATED ADJACENT TO THE CURB. FIRE HYDRANT SHALL BE LOCATED NO FURTHER THAN 12 FT FROM THE CURB. MINIMUM ROAD WIDTH AT A HYDRANT SHALL BE 26 FT.

**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.



**GENERAL NOTES:**

- CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
- WET UTILITY MAIN ALIGNMENTS SHOULD PARALLEL THE STREET RIGHT-OF-WAY TO MAXIMIZE RIGHT-OF-WAY AVAILABLE FOR FUTURE UTILITIES. ADDITIONAL SANITARY SEWER AND STORM WATER MANHOLES WILL LIKELY BE REQUIRED ON CURVES.
- WET UTILITY SERVICE LINES SHALL BE PERPENDICULAR TO THE MAIN.
- WET UTILITY MAINS AND SERVICE LINES SHALL NOT BE LOCATED IN BIOSWALES.
- STREET TREES SHALL NOT BE INSTALLED WITHIN 10 FEET OF WET UTILITY MAINS, AS MEASURED FROM CENTER OF TREE TO CENTER OF PIPE.
- AS AN ALTERNATIVE TO THE WATER AND SEWER SERVICE LAYOUT SHOWN, WATER AND SEWER SERVICE LINES CAN BE INSTALLED IN THE SAME TRENCH AS A WAY TO PRESERVE MORE ROOM FOR STREET TREES. WATER AND SEWER SERVICES SHALL BE SEPARATED BY 1.0' MINIMUM.

**LEGEND-PROPOSED**

- W WATER MAIN
- WS WATER SERVICE
- S SANITARY SEWER MAIN
- SS SANITARY SEWER SERVICE
- PROPERTY LINE
- CURB BOX
- METER PIT
- SANITARY SEWER MANHOLE
- DRY WELL

**KEYED NOTES:**

- NO WATER MAIN SHALL BE WITHIN 5 FEET OF THE NEAREST POINT OF ANY SANITARY OR STORM MANHOLE OR DRY WELL. THE DISTANCE TO A DRY WELL SHALL BE MEASURED TO THE EDGE OF THE STRUCTURE. WATER MAINS CLOSER THAN 10 FEET FROM A DRY WELL WILL REQUIRE A DEVIATION FROM DEQ. NO SEWER MAIN SHALL BE WITHIN 5 FEET OF THE NEAREST POINT OF ANY STORM MANHOLE, CATCH BASIN OR DRY WELL. THE DISTANCE TO A DRY WELL SHALL BE MEASURED TO THE EDGE OF THE STRUCTURE.
- WATER AND SEWER MAINS SHALL BE SEPARATED BY A MINIMUM OF 10 FEET AS MEASURED FROM EDGE OF PIPE TO EDGE OF PIPE.
- MANHOLES SHOULD BE LOCATED IN THE CENTERLINE OF THE ROAD OR THE CENTER OF THE DRIVE LANE.
- SEWER SERVICE LINES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM EDGE OF MANHOLE.
- WATER SERVICE LINES SHALL BE LOCATED A MINIMUM OF 7 FEET FROM EDGE OF DRY WELL CONCRETE STRUCTURE.
- CURB BOXES SHALL BE LOCATED IN THE CENTER OF THE BOULEVARD WHERE APPLICABLE OR 2 FEET FROM EDGE OF RIGHT-OF-WAY.
- METER PITS SHALL BE LOCATED 2 TO 5 FEET ON THE PROPERTY SIDE OF THE RIGHT-OF-WAY LINE OR AS SHOWN IN DETAIL STD-404A.
- CURB BOXES AND METER PITS SHALL NOT BE INSTALLED WITHIN SIDEWALKS OR TRAFFIC AREAS WITHOUT PRIOR APPROVAL BY CITY UTILITY ENGINEER.

Engineering Division Approved By Utilities Engineer Logan McInnis, PE Adopted: 09/28/2020 Revised: 01/01/2023 **STD - 409**

Engineering Division Approved By Utilities Engineer Logan McInnis, PE Adopted: 09/28/2020 Revised: 01/01/2023 **STD - 410**

Engineering Division Approved By Utilities Engineer Logan McInnis, PE Adopted: 09/28/2020 Revised: 01/01/2023 **STD - 415**

Engineering Division Approved By Utilities Engineer Logan McInnis, PE Adopted: 09/28/2020 Revised: 01/01/2023 **STD - 416**

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www.imegcorp.com 59801

DATE	
REVISIONS	

DESIGNED: *AJM*  
DRAFTED: *LTM*  
CHECKED: *AJM*  
DATE: *APR 2023*

LOCATION: TRACT 5 AND TRACT 2 OF COS 6817 MARY JANE BOULEVARD SEC 18, T13, R19W, P. M. M. MISSOULA COUNTY  
PREPARED FOR: MIRAMONTE

PROJECT NAME: MISSOULA LOFT HOMES ON MARY JANE  
PROJECT NO.: 22000700.01  
SHEET: D3 OF D3  
SHEET TITLE: UTILITY CONSTRUCTION PLANS DETAIL SHEET

**STAGE 2**

DRAWN LOCATION: G:\025\22000700.01\DESIGN\CONV\CD\PLANS\UTILITY\WATER\WTR-22000700.01.DWG