



August 19, 2024

Mr. Josh Stanley, CWP
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RE: Desktop Review Report for the Former Denver Federal Center Redevelopment Parcel
Southeast of West 6th Avenue and Union Boulevard

Dear Mr. Stanley:

Trihydro Corporation (Trihydro) is pleased to present the following Desktop Review Report for the Former Denver Federal Center (DFC) parcel located southeast of West 6th Avenue and Union Boulevard located in Lakewood, Colorado (Property). Trihydro has prepared this report for Green Mountain Water and Sanitation District (GMWSD) and Miller & Associates (M&A). The Property is currently owned by Lakewood Land Partners, LP (LLP) who will develop the site. The objective of this report is to provide a summary of the documents reviewed by Trihydro and provide a third-party assessment of the environmental investigations and remediation conducted at the Property and potential recommendations.

This report is divided into the following sections: background information on the Property history and ownership; summaries of previous environmental documents reviewed and findings which are provided for context; and Trihydro's interpretation of the environmental conditions at the Property based on our review as well as our recommendations relating to environmental aspects of construction, installation, and future operation and maintenance of GMWSD's planned water and sanitary sewer infrastructure at the Property.

BACKGROUND

The overall redevelopment Property consists of a 59-acre parcel as shown in Figure 1. The Property is currently planned for residential and commercial redevelopment by LLP in the southern area of the Property. The southern area is roughly demarcated as the area south of West 4th Avenue, and conversely, the northern area is north of West 4th Avenue. Future phases may include development in the remaining northern and northeastern areas of the Property, but no plans have yet been presented to Trihydro. LLP has hired its own environmental consultant Vertex Companies, LLC (Vertex) to review, assess, and advise LLP regarding environmental issues for the redevelopment.



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The planned GMWSD infrastructure, which is to be constructed and installed by LLP, is currently designed for the southern area only, or Phase 1, and will provide water and sanitary sewer services to the development. Utility plans prepared by LLP's civil engineer Kimley-Horn are provided in Attachment A. Following construction, the infrastructure will then be turned over to GMWSD for long-term ownership, operation, and maintenance.

The history of the Property has consisted of various uses summarized as follows:

Agricultural	Prior to 1941
Former Denver Ordinance Plant (DOP)	1941 to 1945
Idled activity	1946 to Mid-1950's
Former DFC	Mid-1950's to 2023
Purchase and ownership by LLP	2023 to present

The Property has gone through extensive environmental investigations over several decades and various remedial measures have been completed or implemented at several locations across the Property. This was done mainly while operating as the DFC, administered by the General Services Administration (GSA) and overseen by the Colorado Department of Health and Environment (CDPHE) Hazardous Materials Waste Management Division (HMWMD).

Over its environmental investigation history, the Property has been segmented into the following Investigation Areas (IAs) as shown on Figure 1:

- Northern Areas (areas approximately north of West 4th Avenue):
 - IA08 - Capped landfill area designated as the Landfill Cover Area (LCA), currently under restricted land use
 - IA08/IA12N - Capped landfill area designated as the Maintain Existing Land Cover Area (MELCA), currently under restricted land use
 - East IA08/West IA10N - Former DOP and DFC areas, no further action (NFA) status obtained
- Southern Areas (areas approximately south of West 4th Avenue):
 - IA12N - Former DOP storage areas, NFA status obtained
 - North IA11 - Former landfill and coal storage areas, NFA status obtained
 - IA17N - Former DOP powder canning area, DOP buildings, NFA status obtained
 - IA06N - Former DOP primer area and storehouses, NFA status obtained



The above IAs were further subdivided into specific individual investigation areas based on the specific areas of concern within the IA. A summary table of these IAs and specific individual investigation areas within the Property is shown in Table 1 along with contaminants of concern, remedial actions, and current regulatory status. These IAs are also shown on the 1954 historical aerial photograph included as Figure 2, which shows various activities such as landfilling and site conditions when many of the observed environmental impacts were created at the Property and subsequently remediated. Supplemental detailed IA maps are provided in Attachment B.

Environmental use restrictions or institution controls were placed on the Property by the CDPHE in 2017 that restrict certain use of the Property are summarized as follows:

1. Groundwater use is restricted across the entire 59-acre parcel. Specifically, no groundwater beneath the Property from ground surface to a depth of 100 feet below ground surface (ft bgs) may be withdrawn for any purpose, except as authorized in a remedial decision document or environmental sampling plan approved by the CDPHE, with the following exceptions:
 - a. The installation or use of monitoring or remedial wells is allowed as authorized in a remedial decision document or environmental sampling plan approved by the CDPHE.
 - b. Groundwater extraction/management arising from construction dewatering is allowed which is conducted in compliance with applicable wastewater discharge regulations.
 - c. If the Property is not owned by the federal government, the Owner shall secure a Construction Dewatering Permit in accordance with the Colorado Water Quality Control Act prior to any dewatering activities. Any person applying for a construction dewatering permit on the Property must notify the CDPHE's Water Quality Control Division that the groundwater is contaminated and that a restrictive notice has been imposed.
2. The protection of the integrity of the Corrective Measures (applies to LCA and MELCA only):
 - a. No excavation, grazing, drilling, grading, diggings, tilling or any other soil disturbing activity is permitted within the NW Corner Landfill Cover area unless conducted in accordance with:
 - i. The most recent version of the CDPHE-approved Northwest Corner Landfill Cover Materials Handling Plan ("NW Corner Landfill Cover MHP"),
 - ii. A remedial decision document or environmental sampling plan that has been approved by the CDPHE.
3. Inspection and maintenance of the Corrective Measure (applies to the LCA and MELCA only).
 - a. The Owner maintains an affirmative obligation to monitor and maintain the corrective measures in the NW Corner Landfill (LCA and MELCA) in accordance with the Northwest Corner Landfill Cover Operations & Maintenance Plan ("NW Corner Landfill Cover O&M Plan").



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The following sections present a more detailed summary of the documents reviewed by Trihydro, chronologically from most recent to older. The background section above and the document summaries presented below are provided for additional context for development of the findings and recommendations presented later in this report.

GMWSD INFRASTRUCTURE PLANS - KIMLEY-HORN (FEBRUARY AND MAY 2024)

This document consists of 93 sheets of drawing plans for the water and sanitary sewer utility and associated infrastructure installation for the Phase 1 area of the development prepared by LLP's civil engineer. Phase 1 generally corresponds to the southern area of the Property. The water utility for Phase 1 will include the installation of water main, valves, hydrants, etc. A portion of the utilities will be installed in the IA08/IA12N MELCA along West 4th Avenue on the northern area of the Property. The remainder will be installed at various locations primarily along easements along roadways within the southern area of the Property.

The sanitary sewer utility for Phase 1 will include the installation of sewer main, manholes, lift station, force main, and related fixtures. Depth of the sewer lines will range across the site, but may be as deep as approximately 20 ft below grade. Depth to groundwater across the site has been reported between 5 to 30 ft below grade. Sewer infrastructure installed on the east and northeast portion of the site may be close or potentially below the groundwater table depending on actual installation depth. A portion of the sewer utilities will be installed in the MELCA in West 4th Avenue. The remainder will be installed at various locations primarily along easements along roadways within the southern area of the site. An overall utility plan is presented in Figure 3.

A copy of the Kimley-Horn plans covering the water and sanitary sewer utilities is provided in Attachment A.

REQUEST FOR A COMFORT LETTER REGARDING NORTHWEST CORNER LANDFILL PROPERTY, FORMERLY DENVER FEDERAL CENTER PROPERTY - CDPHE HMWMD (NOVEMBER 2023)

CDPHE HMWMD provided a letter to GMWSD in November 2023 in support of the redevelopment of the 59-acre parcel of land at the former DFC. The November 2023 Comfort Letter provided clarifications of the regulatory status and ongoing requirements for the Property (Attachment C). These are summarized below.

Northern Areas – This area is known as the DFC Area 8 Landfill, which consists of two subareas – the LCA and the MELCA. The LCA consists of a cover made of geofabric material beneath a 1-ft thick soil layer vegetated with grass. The MELCA consists of sidewalks, pavement and center island, asphalt road, or vegetation along the West 4th Avenue right-of-way. The LCA and MELCA are subject to an Environmental Use Restriction and Restrictive Notice (RN) that prohibits excavation and soil disturbance



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activities unless performed in accordance with the CDPHE-approved Materials Management Plan (MMP). The RN requires the LCA and MELCA to maintain cover of these areas in accordance with the CDPHE-approved Operations and Maintenance (O&M) Plan. The LCA and MELCA are also subject to a Corrective Action Plan (CAP) which will be used to guide remediation and redevelopment in that area. The northern areas also consist of the area east of the LCA and MELCA, including the areas designated East IA08 and West IA10N. These areas have undergone previous remediation and have both received NFA status from the CDPHE.

Southern Areas – This area is currently vacant land covered in vegetation, former structure concrete pads, remnants of asphalt roadways, concrete debris, soil mound, and wooden deck area. The southern area has gone through extensive investigation and remediation since the Compliance Order on Consent No. 97-07-18-01 between CDPHE and GSA in 1997. CDPHE issued a NFA for the southern portion and other areas. The NFA areas were determined by CDPHE to have no or low levels of contamination or had been sufficiently remediated such that they do not pose an unacceptable risk to human health or the environment under an unrestricted/residential use scenario.

CDPHE was notified that LLP proposed two phases of development. The first phase is the southern area along with utility installation within West 4th Avenue, which is within the MELCA and Routt Street. The second phase may include development of the northern area at a later time.

Although NFAs are in place for the southern IAs, LLP conducted an additional supplemental site investigation (SSI) on the southern area of the proposed development. LLP shared the investigation findings and report with CDPHE. The agency issued a Comfort Letter to GMWSD, indicating, “The results of the SSI confirmed that the prior remedial efforts in the southern portion of the Property were effective.” The Comfort Letter did not address known or potential groundwater or vapor phase impacts.

CDPHE was notified that LLP intends to submit a proposed modification to the existing CAP on the northern area, and that this modification may extend the CAP to address the southern area. CDPHE stated that extending the CAP to the southern portion will allow the CDPHE to guide the redevelopment of the entire Property to ensure unrestricted use utility corridors, to initiate specific remedial activities if impacts are encountered, and to ensure that conditions remain protective of human health and the environment.

The CDPHE Comfort Letter does not address the groundwater use restriction that applies to the entire Property presumably under the assumption that groundwater is not expected to be encountered by LLP’s construction contractor. However, the use restriction does not prohibit construction dewatering of groundwater if authorized by CDPHE discharge permit. The possibility exists groundwater could be encountered by LLP’s contractor during construction or by GMWSD or their subcontractors in the future based on depth to groundwater measurements and the requirements for handling and/or discharging



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potentially contaminated groundwater could present significant regulatory and cost impacts to GMWSD. Additional discussion on this issue will be presented in the recommendations section.

LIMITED SUPPLEMENTAL SITE INVESTIGATION - VERTEX (NOVEMBER 2023)

As noted above, Vertex completed a *Limited Supplemental Site Investigation* (SSI) in 2023. Vertex first conducted a document review during the Phase 1 ESA described in the next section and determined that there may be areas within the southern development area where residual contamination was potentially left in place, despite prior remediation efforts and NFA determinations. Vertex proposed to conduct Limited SSI activities at the southern Property. The purpose of the *Limited SSI* was to fully characterize subsurface soils in preparation of development and materials management protocols by performing additional investigations in areas not noted as being previously investigated and/or remediated. The scope of work for the *Limited SSI* included:

- Divided the site into 13 grid areas
- Performed GPR survey to identify subsurface structures, anomalies or utilities
- Installed 24 test pits (~2 per grid)
- Installed 58 soil borings (~4-5 per grid)
- Collected soil samples from borings for analysis

Figure 4 shows the Vertex 2023 SSI locations on an aerial photograph. Figure 5 shows the SSI locations superimposed upon the updated proposed utility plan (Kimley-Horn May 2024). The GPR survey conducted in August 2023 identified several buried utilities.

Test pits were conducted in August 2023. Test pits were excavated by backhoe and were approximately 3 ft wide by 10 ft long to a depth of 9 to 10 ft bgs. Soils were visually classified and inspected by a Certified Asbestos Building Inspector (CABI). Test pits did not reveal any suspect building materials or suspect soils. Test pits were backfilled after they were completed.

A total of 58 soil borings were advanced between August and September 2023, with approximately 4 to 5 borings per grid. The borings were installed to a depth of 15 ft bgs in Grids A1 through A12, and 10 ft bgs in Grid A13. Samples were collected by continuous 5-ft intervals starting at ground surface. Soil samples were screened with a photoionization detector (PID) for total organic vapor. Observations of physical characteristics, staining or other visual evidence of potential detections and PID readings were recorded. No volatiles were detected by the PID in any of the screened samples. No petroleum odors, staining, or other evidence of impacts were identified in any of the borings. In Grids A1 through A12, soil samples were collected at the following intervals: 0 to 2 ft bgs, 2 to 4 ft bgs, 4 to 6 ft bgs, and 10 to 15 ft bgs. In Grid A13, samples intervals included 0 to 4 ft and 4 to 8 ft bgs. Soils were homogenized from within each vertical interval. Soil samples were analyzed for:



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- VOCs by EPA Method 8260
- PAHs by EPA Method 8270
- RCRA 8 metals by EPA Method 6010/7470,7471
- Asbestos by Polarized Light Microscopy (PLM)
- Organochloride Pesticides by EPA Method 8081

Analytical results are summarized in the SSI report. Subsurface soils generally consisted of grey to brown silts with varying quantities of sand and gravels. Orangish brown silty sands were observed at the 10 to 15 ft bgs interval in several of the borings.

Groundwater was not commonly encountered in the test pits or borings, except in the Grid A4 test pits at a depth of 9 to 15 ft. Grid A4 corresponds to a lower elevation near the existing stormwater detention area. Additionally, Grid A4 is in the area of the proposed lift station (Figure 5). Based on the depth of the proposed lift station, it is particularly likely that groundwater will be encountered in this area. Although the Vertex report identifies four existing groundwater wells on-site, groundwater samples were not collected as part of the SSI. The well identifications are not listed in the SSI Report but are speculated to be former GSA wells. Groundwater is expected to flow to the east-northeast at the site based on the June 2006 *Phase 2 RCRA Facility Investigation of the DFC Northern RTD Expansion Area* historical document. Depth to groundwater has been previously reported at depths ranging from 6.5 to 32 ft bgs across the site. Figure 6 presents the most recent depth to groundwater measurements obtained from SSI test pit observations in August 2023 and the developer's geotechnical study in September 2023 in relation to the proposed utility depths. Figure 6 shows that a portion of the sanitary sewer lines in the northeast segment of the development may be very close or below the water table.

Soil sample results were compared to EPA soil screening levels and are summarized below. It is noted that EPA has multiple different screening levels based on different exposure scenarios. It is a common practice to compare site-specific results against multiple screening levels to consider actual and potential future risks. Table 2 presents a summary of Vertex's results compared to screening levels.

VOCs

Soil sample results for VOCs were either non-detect or below EPA Regional Screening Levels (RSLs) for Residential Land Use. The date of the RSLs used by Vertex was not readily apparent in the SSI Report but is presumed to be the most recent RSLs for the date of the report. Some non-detect values were at method detection limits (MDLs) that exceeded the Protection of Groundwater Risk-Based Soil Screening Levels (SSLs). Vertex determined the MDLs were consistent with industry standards for those methods, and that leaching of low-level VOCs from soil to groundwater was unlikely. It was concluded that no further investigation was warranted.



SVOCs

Soil sample results for SVOCs were either non-detect or below the EPA RSLs for Residential Land Use except for the compounds discussed below:

- Benzo(a)pyrene was detected in 12 samples that exceeded the EPA protection of Groundwater Risk-Based SSL, but did not exceed the EPA Protection of Groundwater Maximum Contaminant Level (MCL) based SSL. Three of these 12 samples, A3 (2 to 4 ft bgs), A4 (2 to 4 ft bgs), and A9 (0 to 2 ft bgs), exceeded the RSL for Residential Land Use. Vertex determined that the shallow soils and isolated nature of the benzo(a)pyrene were likely a result of vehicular exhaust fumes and/or engine combustion due to the proximity of West 6th Avenue and Union Boulevard. Vertex further concluded that benzo(a)pyrene impacts were unlikely to present a concern due to the presumed fill needed in Grid areas A3 and A4 and the presumed cut needed in Grid A9. Vertex also indicated that the shallow impacts would be removed during excavation for building foundations or fall within building footprints, so no exposure pathway was available, and therefore no further action appeared to be warranted. In summary, because the benzo(a)pyrene would either be covered or excavated there would be no exposure and not a concern.
- 1-Methylnaphthalene, benzo(a) anthracene, and naphthalene were also detected in isolated samples at concentrations above Protection of Groundwater SSLs, but did not exceed RSLs for Residential Land Use. Vertex determined no further action for these detections appeared to be warranted.
- Similar to the VOCs, some non-detect values for the SVOCs were at MDLs that exceeded the Protection of Groundwater Risk-Based SSLs. Vertex determined the MDLs were in line with industry standards for that laboratory method, and that the leaching to groundwater pathway was unlikely. It was concluded that no further investigation was warranted.

RCRA 8 Metals

Soil sample results for metals were either non-detect or detected below the EPA RSLs for Residential Land Use except for the following:

- Arsenic was detected in nearly all samples exceeding the EPA RSL for Residential Land Use, but all below the Background Levels for Urban Mixed-Use level established by the CDPHE, and therefore no further action was warranted.
- Barium, lead, and mercury were detected in some samples above Groundwater Risk-based SSL, but did not exceed the EPA RSL for Residential Land Use; Vertex determined no further action appeared warranted.
- Selenium was reported as non-detect, but with MDLs that exceeded the Groundwater Risk-Based SSL. Vertex determined that the MDLs were consistent with industry standards for that laboratory method, and that leaching to groundwater pathway was unlikely; it was concluded that no further investigation was warranted.



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Organochlorine Pesticides

Soil samples for pesticides were either non-detect or detected below the EPA RSLs for Residential Land Use except for the following.

- Beta-BHC was detected in a few samples at concentrations above the Protection of Groundwater Risk-Based SSL but did not exceed the Residential Land Use RSL and Vertex determined no further action warranted.
- Several pesticides were reported at non-detect values, but at MDLs above the protection of groundwater SSL but not above the Residential RSLs and Vertex determined no further action appeared warranted.

Asbestos in Soil

The soil sample results were non-detect for asbestos. No visual evidence of asbestos in soil was observed.

In summary, Vertex presented the following conclusions and recommendations for the SSI:

- No VOCs or pesticides in soil exceeded the Residential Land Use RSL.
- Isolated low-level benzo(a)pyrene contamination detected was likely a result of vehicular exhaust fumes or engine exhaust likely due to the proximity of 6th Ave and Union. Isolated detections of benzo(a)pyrene exceeding Residential Land Use RSLs were unlikely to present a concern due to the presumed fill need in Grids A3 and A4 and presumed cut in Grid A9. It was stated that shallow impacts will be removed during excavation for building foundations or fall within building footprints, so that no exposure pathway was complete.
- Arsenic levels were below CDPHE-established background levels.
- Soil samples were reported non-detect for asbestos.

The SSI findings supported CDPHE's prior NFA letters for the Property. CDPHE concurred with the SSI findings as noted in the aforementioned November 2023 Comfort Letter.

TRIHYDRO FINDINGS AND RECOMMENDATIONS

Trihydro has reviewed the above-listed historical documents as well as other related documents to provide a third-party assessment of the environmental investigations and remediation conducted at the Property (Attachment D). In addition, Trihydro evaluated the prior environmental assessment activities in the context of the pending installation of GMWSD infrastructure and future operation and maintenance at the Property. Overall, the previous investigations and remedial efforts conducted at the Property by various entities, and overseen by CDPHE, appear adequate and complete for the standards in use when those activities were completed. CDPHE also reviewed Vertex's SSI report and stated the SSI results confirmed that the prior remedial efforts in the southern portion of the Property were effective.



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Trihydro largely agrees with the CDPHE determinations for NFA for those sites that have received that status. However, despite the attainment of NFA at several of the IAs, the documentation indicates that residual contamination may remain, and the potential exists to encounter environmental concerns during construction or during future maintenance that may impact GMWSD infrastructure and/or personnel. Trihydro has specific findings and recommendations relating to the following areas:

1. Emerging contaminants
2. Additional soil confirmation sampling
3. Potential remaining buried steam lines and debris
4. Vapor sampling and barriers
5. Potential future groundwater dewatering
6. LCA and MELCA CAP modification
7. Potential future water line break or repair scenarios
8. Risk to pipe integrity due to potential contamination
9. Clarity on obligations and responsibility for utilities and potential future development within the LCA and MELCA
10. Geotechnical consideration of utilities installed with former fill areas
11. GMWSD specific operations plan
12. Consideration of specialty sampling raised by stakeholders

Each of the above topics are described in greater detail below.

1. The previous investigations throughout the Property typically involved assessment of VOC, SVOCs, metals, pesticides, and asbestos. Remedial efforts for contaminants of concern primarily involved removal of asbestos, PAHs, and metals. Investigation and remediation did not include assessment of any emerging contaminants. Emerging contaminants have recently been raised as a potential issue at many sites and regulations are currently evolving. For example, emerging contaminants such as per- and polyfluoroalkyl substances (PFAS) have never been assessed at the Property. Limited testing of 1,4-dioxane has been conducted as part of the DFC groundwater and stormwater monitoring program, and some test results exceed regulatory standards in some areas of the DFC. Those chemicals are known to be associated with landfills and other activities. This potential uncertainty may pose a risk to GMWSD if those substances are present and future work requires contact with and/or special handling and disposal of soil or groundwater. Trihydro recommends collection of groundwater samples, if possible, from the four existing wells on-site and two potentially new groundwater wells at the northeast area of the site. Figure 7 shows the proposed well locations. These samples are recommended to be analyzed for PFAS and 1,4-dioxane to determine if those contaminants may be



present at the site and to screen any detections against updated EPA PFAS MCLs (April 2024), Colorado Water Quality Control Commission Policy 20-1, and/or other current standards that apply. Or alternately these data may already exist as part of DFC sampling in nearby wells. For confirmation, the groundwater samples should also be analyzed for VOCs, SVOCs, and metals (dissolved) and then compared to appropriate screening criteria. Table 3 presents a list of recommended groundwater sampling. It is also recommended that these wells be measured for depth to groundwater to verify proximity to utility lines and structures and estimate groundwater flow direction and gradient. This may require a survey of the top of well casing to determine elevations.

2. Generally, it appears the GMWSD water and sanitary utility alignments for Phase 1 follow the proposed roads within the development. Small segments of utilities are planned within the MELCA portion of West 4th Avenue, which would fall under CDPHE's approved MHP. However, portions of the utility alignments throughout the remainder of Phase 1 of the project may not align with some of the previous Vertex confirmation sampling during the SSI or other previous historical sampling locations (Figure 5). Therefore, the possibility exists that confirmation sampling has not fully covered some locations of the proposed utility alignments. Trihydro recommends additional confirmation sampling of soils to occur either: 1) prior to utility excavation/construction using direct push drilling methods or 2) during utility installation trenching over the entire alignment to provide GMWSD additional data to verify contamination is not encountered along the utility alignments. Figure 7 shows potential soil sampling locations along the utility corridors. It is recommended that laboratory soil confirmation samples be obtained at least every 100 ft of linear utility for the same contaminants of concern as in the Vertex SSI (VOCs, SVOCs, metals, pesticides, and asbestos) and pH in soil for screening of residual impacts from former use of coal slag or other materials, and/or intervals based on visual observations in the field. Table 3 presents a list of recommended soil confirmation sampling. Trihydro recommends 100% visual inspection of the entire length of utility excavations during construction by trained personnel that can identify potential asbestos containing materials (ACM) and other signs of contamination. If contamination is observed during construction, soil samples can be tested on a 3-day turn-around time to receive results relatively quickly in order to evaluate whether additional hot-spot soil removals may be necessary if this is feasible with the construction sequencing of the utilities. Consideration should also be given to sampling select locations for emerging contaminants. Quick turnaround times may not be available for PFAS or 1,4-dioxane testing however. In the event groundwater is encountered during construction, Trihydro recommends collection of grab samples of groundwater for VOCs, SVOCs, metals, pesticides, and asbestos, and for emerging contaminants PFAS and 1,4-dioxane. Grab samples from open excavations can sometimes be turbid and overestimate actual groundwater conditions; therefore, the grab samples would be used for screening purposes only. If the grab sample results are reported with elevated detections of constituents (other than naturally-occurring metals), subsequent installation of a groundwater monitoring well at that location should be considered for further confirmation testing.



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3. During installation of the sewer force main line to the south along and to the east of Routt Street, there may be a high potential to encounter buried steam lines or vaults that were reported to have been abandoned in-place or may be undocumented, as shown on Figure 1. The objective of the previous remedial and demolition activities conducted in that area of IA06 focused on removing the above-grade structures and identified areas of contamination. Although some buried piping was removed, the documents indicated buried piping remains at the location. Therefore, the potential to encounter buried piping, debris, or potentially asbestos or other contaminants may be greater at that location compared to other locations in the southern portion of the site. Additional visual inspection of the area during construction may be warranted.
4. Historical documents reviewed indicate that methane and VOCs were not noted as a concern for the property, including the LCA and MELCA landfills. The scope of the Vertex SSI included soil confirmation sampling only, and did not include vapor sampling. Landfills in many other cases are known to generate methane; utility trenches, lift stations, and backfill are known to act as a conduit for vapor migration. Because the proposed GMWSD utilities will be located within the MELCA in Phase 1 and future development within the LCA is possible, Trihydro recommends that consideration be given to confirmation sampling for methane and VOCs or determination from existing documentation that methane and VOCs is not currently present in soil vapor near the utility lines. Proposed soil vapor sampling locations are shown on Figure 7. This effort would help determine that methane is not a potential risk for migration through GMWSD trenches and subsequent accumulation in vaults or occupied spaces. Additionally, measures could be installed in the utility trenches to act as a barrier to potential vapor migration and groundwater migration. Groundwater is not expected to be encountered at the depths shown for the stub-out locations at the MELCA for the water line or sanitary sewer line. However, a barrier for vapor migration may also act as a barrier to groundwater if ever encountered. A barrier may include installing a section of low permeable bentonite-soil mixture as a 'plug' or dam in the trench backfill at the southern boundary of the MELCA for any utility trench extending into the MELCA. This may act as a precautionary measure to reduce the potential for vapor or groundwater to migrate along the more permeable utility backfill. The dam or plug could extend 3-ft along the length of the utility and from a depth of the base of the trench up to the top of the permeable backfill in the trench. Additional measures could be considered such as conduit seals for all utilities penetrating buildings to serve as an additional precautionary measure. The seals can be sprayed closed-cell polyurethane foam extending at least six conduit diameters into the conduit penetration.
5. Groundwater is not currently expected to be encountered by GMWSD infrastructure. However, there are locations at the Property at lower elevations such as near the stormwater features where groundwater may be encountered during construction or in the future during maintenance by GMWSD. Groundwater beneath the Property falls under an environmental use restriction that prohibits withdrawal of groundwater, but allows construction dewatering if under CDPHE issued permit. A dewatering permit application will require the applicant to identify groundwater at the site as potentially contaminated and will likely require submittal of updated groundwater sample for



screening against a variety of potential contaminants known within ½-mile of the Property before the CDPHE would approve a groundwater discharge permit to surface water. This may include screening for potential impacts from emerging contaminants, or from the known PAH impacts in groundwater within the LCA and MELCA use restriction area, or additional CDPHE groundwater permitting discharge criteria for issues such as naturally-occurring metals. This would likely present additional regulatory requirements and costs to GMWSD if encountered. Future dewatering by GMWSD to support utility repair, for example, may be restricted and would be considered potentially contaminated for permitting or disposal purposes. The CDPHE would likely issue a more restrictive Remediation Permit that could potentially require costly treatment for groundwater discharge to surface water or off-site disposal if dewatering is necessary. Table 4 presents an approximate estimate for the permitting and treatment costs associated with off-site dewatering discharge under a CDPHE Remediation Permit for an estimated project duration of one week. Contaminated groundwater may also sometimes be transported and disposed of off-site without a discharge permit at a treatment facility at a cost of around \$1.00-\$1.50 per gallon. The additional sampling recommended in No. 2 above would provide updated data for groundwater conditions and help determine likely discharge requirements if GMWSD is subject to a dewatering permit in the future.

6. Regarding the November 2023 CDPHE Comfort Letter, the status of the proposed modification to the CAP for the northern landfill area is unknown and has not yet reviewed by Trihydro. It is recommended that the status of the proposed CAP modification be obtained from the developer. If the CAP modification extends to the southern area of the property, which would allow additional future involvement of the CDPHE on the southern area development, this should add additional level of oversight during design and construction that should theoretically be of benefit to GMWSD. Trihydro is in general agreement with CDPHE that the southern area of the site has been extensively investigated for the target constituents of concern, and that the results of those investigations would support a NFA determination for the southern area. However, as stated above, the potential to encounter contamination at the site or within the proposed utility corridors during construction or future maintenance is not fully eliminated. Phase 1 construction within the MELCA in West 4th Avenue will require following the existing MMP and may have a higher potential of encountering contamination. This would also apply to future phases within the LCA.
7. Future potential scenarios that GMWSD may encounter at the site may include a water-line break and repair and the potential challenges from residual contamination if present. For example, released water that then encounters site soils may require special handling and/or testing for removal and disposal. Soil may also infiltrate into the water line system during a break and require special flushing, user notifications, or other procedures if there is a potential contamination concern. The additional confirmation sampling proposed above may help quantify conditions along the utility alignments specifically if such a future scenario is encountered.
8. If residual contamination is present along the utility, the properties of currently identified chemicals and concentrations are not expected to pose an exterior physical degradation risk to the material types such as PVC pipe used for the water or sanitary sewer pipes or valves. Further, if emerging



contaminants such as PFAS or 1,4-dioxane are present these are also not anticipated to pose a physical degradation risk to the pipes. If additional testing such as soil pH as proposed in recommendation No. 2 for example indicates any corrosive characteristics, that may have a bearing on pipe compatibility. Confirmation sampling results would be compared to available pipe manufacturing standards for chemical compatibility such as from ASTM, Plastics Pipe Institute (PPI), or other applicable standards.

9. The obligations for the LCA and MELCA by the 'Owner' are detailed in the CDPHE Restrictive Notice, Operations & Maintenance (O&M) Plan, and Materials Management Plan (MMP) referenced separately. However, it is currently unclear what defines the 'Owner' for utilities within the MELCA or LCA, and what entity would be responsible for contamination if encountered in the future as a result of GMWSD repair activities for example. It is not clear if that responsibility would be fully borne by GMWSD, or fully or partially held by LLP, or a future home-owner association. It is recommended that additional clarity on this issue be obtained for future planning purposes by GMWSD. Potential future development north of W. 4th Ave into the MELCA and LCA will require additional assessment once proposed plans are presented. Some precautionary measures can be taken within the southern development in anticipation of future northern development like trench dams and vapor barriers for utility lines extending into the MELCA. The scope of this report primarily focuses on potential environmental issues for the proposed southern development and is not intended to serve as assessment or approval of potential future northern development.
10. The geotechnical suitability of trenching and installing utilities in former landfill material or formerly filled areas was not part of Trihydro's scope of work. Landfill and historical fill material can be poorly compacted and potentially cause settlement or otherwise damage utilities. If not already assessed and engineered, Trihydro recommends that GMWSD evaluate the geotechnical suitability of installations in former potential fill areas.
11. Trihydro recommends GMWSD develop a site-specific operations plan and contractor flow down requirements for future GMWSD activities at the site that identifies the special conditions at the site and procedures to follow such as special handling and disposal during future repair and maintenance of GMWSD's water and sanitary infrastructure. This may require GMWSD to have trained personnel to be on-site for any future repair excavations, to monitor for signs of contamination and to adequately follow the proposed site-specific operations plan.
12. Trihydro understands that there is some stakeholder/public interest in additional confirmation sampling for potential radioactive and chemical/biological warfare agents if disposed at the former landfills. None of the historical documents reviewed by Trihydro indicate those types of materials were ever manufactured, handled, or disposed of at the site. Testing of soil or groundwater for these compounds is potentially possible, for example testing for radiochemistry such as gross alpha/beta/gamma radioactivity and various isotopes. Testing for chemical weapons agents such as nerve gas or herbicides such as Agent Orange is also technically possible. Testing for biological agent compounds may be challenging as it requires specialized laboratory testing for pathogenic



Mr. Josh Stanley
August 19, 2024
Page 15

agents such as anthrax, brucellosis, botulism and others. Interpretation of results may also be challenging as any low detections of radioactive elements such as uranium, radium, or radon, and some microorganisms also found in biological agents could be from naturally occurring sources. Therefore, lacking any additional documentation or evidence of previous use, handling, or disposal of these agents on-site, this type of additional testing is not currently recommended.

Some of the above recommendations may result in GMWSD incurring additional costs in the near term or in the future compared to typical sites not located in potentially contaminated areas. If additional discussion or cost estimates for the recommendations are needed, these can be provided upon request.

We appreciate the opportunity to provide this report to GMWSD. Please do not hesitate to contact us with any questions or requests for additional information at (307) 745-7474.

Sincerely,
Trihydro Corporation

Dave C. Haines, P.E.
Senior Engineer, Project Manager

Fritz Krembs, P.E., P.G.
Project Director

GMWSD-023-0001

Attachments

TABLES

**TABLE 1. SUMMARY OF HISTORICAL INVESTIGATIONS AND CURRENT REGULATORY STATUS WITHIN PROPERTY BOUNDARY
DENVER FEDERAL CENTER FOR GREEN MOUNTAIN WATER AND SANITATION DISTRICT
LAKEWOOD, COLORADO**

Area ID	Former Use	Former Investigations	Contaminants of Concern (COCs)	Remedial Actions	Current Regulatory Status	Are GMWSD Utilities Proposed Within This Area with Phase 1 Development (Yes/No)	Are GMWSD Utilities Possible Within This Area with Potential Future Development (Yes/No)
IA08 (LCA)	Historical landfill and burning areas from 1954 to 1963, Also known as NW Corner Landfill or DFC Area 8 Landfill	Site 801 Landfill Site 801 Groundwater Seep Site 802 Debris Area Site 803 Landfill Site 808 Buried Tunnel and Pipes	PAHs, asbestos, arsenic, lead, misc. solid waste Debris (scrap metal, brick, regulated asbestos contaminated soil (RACA), bottles, laboratory waste, insulation, oily soil, oily waste, coal residue, cinder material, ash/burned material, and other materials consistent with landfill/burn area) and construction related fill, which included soil, weathered rock, railroad ballast, and broken up concrete and asphalt from roadways.	The Landfill Cover Area (LCA) consists of landfill cover made of geofabric material beneath a 1-ft thick soil layer vegetated with grass. The former tunnel within Site 803 Landfill (historically located within the northeast corner of IA08-LCA) was evaluated to 30 feet to determine if waste deposition occurred during backfilling of the tunnel. The tunnel was not encountered and one temporary well was completed in the boring advanced in the area.	Land Use Restrictions since 2017 Area required to follow Operations & Maintenance (O&M) Plan CDPHE Institution Control ID RSN0T00029 currently in place stipulates: -All soil or groundwater disturbance is subject to Materials Handling Plan (MHP) and O&M plan. -Owners required to maintain inspections and maintenance of corrective measures implemented for LCA. -No withdrawal of groundwater to a depth of 100 ft bgs except in conformance with CDPHE Environmental Use Restrictions.	No	Yes
IA08/IA12N (MELCA)	Historical landfill and burning area. Also known as NW Corner Landfill, DFC Area 8 Landfill, Northern Avenue Landfill	North Avenue Landfill (former drainage area used as landfill) Southern portion of Site 801 and 802 landfills	Same as above	The Maintain Existing Land Cover Area (MELCA) consists of a landfill cover consisting of sidewalks, the pavement and center island of West 4th Ave., asphalt road, or vegetation.	Same use restrictions as above	Yes	Yes
East IA08, West IA10N	Area around former DOP era buildings, and east of IA08 landfills	Site 804 Former Railroad Right of Way and Storage Areas Site 805 Stormwater Pond Site 806 Former coal storage areas and landfill Site 807 Soil Piles and disposal trenches Site 809 Buried Pipes Site 10N01 Area around former DOP buildings Site 10N02 Foundation of former DOP buildings Site 10N03 Soil Mound Site 10N04 Concrete lined ditches Laydown yards Grid 112 and 137 Asbestos Site 10N10 Stressed vegetation and Outfall and Coal Spill	Asbestos, metals, PAHs, SVOCs	Excavation and disposal of Site 806 with confirmation sampling. Excavation and disposal of 4,370 tons of soil from soil mound. Grid 112 asbestos in soil covered with 6-inches of soil and maintain vegetation Excavation and off-site disposal of surface and limited subsurface contaminated soils. Six-inch vegetated cover placed over West IA10N after excavation	NFAs issued 8/10/2011, 12/5/2012, 12/18/2012 Groundwater use beneath entire Property to 100 ft bgs is subject to CDHPE Environmental Use Restrictions. Construction dewatering allowed if under CDPHE permit.	No	Yes
IA12N (South of MELCA)	Former DOP Storage Areas	Southern portion of 806 Landfill Southern portion of North Area landfill Site 12N01 paved and unpaved storage areas, former burial area Site 12N02 Outfall and Coal Spill Site 12N00 Groundwater hit at well GSA-67	Asbestos, arsenic, PAHs, lead	Excavations and disposal related to Northern RTD Expansion Asbestos in soil from areas south of the southern end of the concrete lined stormwater ditch located south of North Avenue were removed. Some soil removal in area associated with landfill 806 remediation No remediation required due to groundwater detections.	NFA issued 8/10/2011 Groundwater use beneath entire Property to 100 ft bgs is subject to CDHPE Environmental Use Restrictions. Construction dewatering allowed if under CDPHE permit.	Yes	Yes
North IA11	Portion of Site 806 Landfill, Stormwater Ditches and berms, Coal storage mound and landfill, Coal seam	Portion of Site 806 Landfill Site 1101 unlined and lined ditch Site 1102 Former Coal and storage mound and landfill Site 1103 Rail Lines	Asbestos, lead, arsenic, PAHs	Excavation of construction debris landfill with friable asbestos was removed as part of Northern RTD Northern Half Expansion Areas work. Soil considered RCRA hazardous waste based on TCLP lead results were excavated from the top four feet of soil in a delineated area within the Site 806 Landfill and transported to the appropriate license facility. A total of 33,662 tons of contaminated soils were excavated and disposed of. The excavations depth ranged from 0.5 to 6.0 feet bgs. Coal seam excavated within NRTD rail alignment only.	NFA issued 2/14/2013 Groundwater use beneath entire Property to 100 ft bgs is subject to CDHPE Environmental Use Restrictions. Construction dewatering allowed if under CDPHE permit.	No	Yes

**TABLE 1. SUMMARY OF HISTORICAL INVESTIGATIONS AND CURRENT REGULATORY STATUS WITHIN PROPERTY BOUNDARY
DENVER FEDERAL CENTER FOR GREEN MOUNTAIN WATER AND SANITATION DISTRICT
LAKEWOOD, COLORADO**

Area ID	Former Use	Former Investigations	Contaminants of Concern (COCs)	Remedial Actions	Current Regulatory Status	Are GMWSD Utilities Proposed Within This Area with Phase 1 Development (Yes/No)	Are GMWSD Utilities Possible Within This Area with Potential Future Development (Yes/No)
IA17N	Former DOP Powder Canning Area, Building 11G, Former Coal Storage Area, Granite silos, Hydraulic oil UST, Building sumps.	Site 1701 Open spaces Site 1702 Coal storage areas, sewage lift sump north of building 11G, storm ditch on western boundary Site 1703 Drainage swale and coal seam Site 1704 Silo, test blocks, borehole features Site 1705 500-Gallon hydraulic oil UST, concrete pad, and building 111G sump	Asbestos, PAHs, arsenic, lead	Coal layers within IA17N along North Avenue removed as part of Northern RTD Northern Half Expansion Areas work. Asbestos, PAH, and lead areas excavated. Removal of granite silos, test blocks, and boreholes. UST excavated and removed, and concrete pad removed. Sumps excavated and removed.	NFA issued 7/26/2006 Groundwater use beneath entire Property to 100 ft bgs is subject to CDHPE Environmental Use Restrictions. Construction dewatering allowed if under CDPHE permit.	Yes	No
IA06N	Former DOP Primer Storehouses/Bunker, Underground steam lines/vaults, Building Sumps, Former coal storage area, Former Site 616 Wells, Former fluorspar strategic stockpile trough.	Site 601 Open Spaces Site 607 Utility Manholes Site 613 Former DOP Primer Storehouses, pre-dry houses, dry houses, vacuum pump houses, and sumps Site 615 former coal storage area Site 616 vertical ground pipes/wells and manhole Site 617 wood wall pit north of building 87 Underground steam lines and vaults	PAHs, organochloride pesticides, arsenic, lead, asbestos Vinyl chloride in one Site 616 well	Excavation of contaminated soils, removal of steam pipes and debris disposed at off-site location. Fluorspar stockpile removed. Depths of soil excavation ranged from 0.50 ft to 21 ft bgs. Approximately 31,092 tons of contaminated soils were removed from the northern portion of IA06. Confirmation samples indicated remaining soils below screening level concentrations (SLCs). Former DOP bunkers previously contained asbestos. Asbestos abatement conducted in 2004. Buried asbestos-containing pipes remain on the southeastern side of the site and would require abatement/removal if encountered (Landmark 2022). Former DOP rail lines remain buried at southeastern parcel also and the potential exists to encounter additional environmental concerns during construction (Landmark 2002). Site 616 well detected with vinyl chloride was treated in-place with 30% hydrogen peroxide and then abandoned with grout. No further groundwater impacts identified on southern parcel.	NFA issued on 7/27/2006, 4/7/2009, 8/10/2011 Possible old steam lines and vaults east of Routh Street may be encountered with Force Main install. Groundwater use beneath entire Property to 100 ft bgs is subject to CDHPE Environmental Use Restrictions. Construction dewatering allowed if under CDPHE permit.	Yes	Yes

Notes:
DOP = Denver Ordinance Plant, operated 1941 to 1945
DFC = Denver Federal Center
NFA = No Further Action
LCA = Landfill Cover Area
MELCA = Maintain Existing Land Cover Area

**TABLE 2. SUMMARY OF SOIL SAMPLING ANALYTICAL RESULTS
DENVER FEDERAL CENTER FOR GREEN MOUNTAIN WATER AND SANITATION DISTRICT
LAKEWOOD, COLORADO**

	CDPHE & CDLE OPS SOIL STANDARDS				MAXIMUM (mg/kg)	MEDIAN (mg/kg)	DETECTION FREQUENCY (%)
	CDPHE / USEPA REGIONAL SCREENING LEVELS (RSLs)						
	DIRECT CONTACT		PROTECTION OF GROUNDWATER SSLs				
INDUSTRIAL	RESIDENTIAL	RISK-BASED SSL	MCL-BASED SSL				
VolatileOrganicCompounds(VOCs)					No Detections	No Detections	0%
SemivolatileOrganicCompounds(SVOCs)							
1-Methylnaphthalene	73	18	0.006	NSE	0.0736	0.034	5%
2-Methylnaphthalene	3,000	240	0.19	NSE	0.0741	0.0741	2%
Benzo(a)Anthracene	21	1.1	0.011	NSE	0.0641	0.0641	2%
Benzo(a)Pyrene	2.1	0.11	0.029	0.24	0.205	0.1005	38%
Benzo(b)Fluoranthene	21	1.1	0.3	NSE	0.109	0.0618	19%
Benzo(g,h,i)Perylene	NSE	NSE	NSE	NSE	0.106	0.0596	18%
Benzo(k)Fluoranthene	210	11	2.9	NSE	0.122	0.0595	19%
Chrysene	2,100	110	9	NSE	0.0263	0.02415	4%
Fluoranthene	30,000	2,400	89	NSE	0.0588	0.03165	14%
Indeno(1,2,3-cd)Pyrene	21	1.1	0.98	NSE	0.155	0.0797	18%
Naphthalene	8.6	2	0.00038	NSE	0.0453	0.0453	2%
Phenanthrene	NSE	NSE	NSE	NSE	0.0307	0.0228	5%
Pyrene	23,000	1,800	13	NSE	0.0384	0.02665	11%
Metals							
Arsenic	3	0.68	0.0015	0.29	8.1	4.1	89%
Barium	220,000	15,000	160	82	469	216	100%
Chromium	NSE	NSE	NSE	180,000	22.1	16	100%
Lead	800	400	NSE	14	39.4	12.8	100%
Mercury	46	11	0.033	0.1	0.083	0.059	11%
OrganochlorinePesticides							
4,4'-DDD	9.6	2.3	0.0075	NSE	0.0014	0.0014	2%
4,4'-DDE	9.3	2	0.011	NSE	0.0012	0.0012	2%
beta-BHC	1.3	0.3	0.00015	NSE	0.0108	0.00255	11%
beta-Endosulfan	NSE	NSE	NSE	NSE	0.0011	0.0011	2%
delta-BHC	NSE	NSE	NSE	NSE	0.0013	0.001105	4%
EndosulfanSulfate	4,900	380	2.1	NSE	0.001	0.001	2%
EndrinAldehyde	NSE	NSE	NSE	NSE	0.0016	0.0016	2%
EndrinKetone	NSE	NSE	NSE	NSE	0.0016	0.0016	4%
Methoxychlor	4,100	320	2	2.2	0.0022	0.00145	11%
AsbestosContainingMaterials(ACM)*							
TotalAsbestosinSample	NSE	NSE	NSE	NSE	No Detections	No Detections	0%

Notes:

Table modified from Table 1 of Vertex Subsurface Investigation (SSI).

Median values are the median of detected concentrations, and are not influenced by non-detect results.

Compounds that were not detected in Vertex SSI soil samples have been omitted, i.e. each of the VOC compounds, fluorene, cadmium, selenium, silver, 4,4-DDT, and toxaphene.

The only detections of VOCs were trace detections of the common laboratory artifact acetone at concentrations multiple orders of magnitude below regulatory standards.

NSE = No Standard Established

Orange Bold Underline = Exceedance of Residential Direct Contact Standard
Bold Underline = Exceedance of Migration to Groundwater Standard

**TABLE 3. PROPOSED ADDITIONAL CONFIRMATION SAMPLING LOCATIONS
DENVER FEDERAL CENTER FOR GREEN MOUNTAIN WATER AND SANITATION DISTRICT
LAKEWOOD, COLORADO**

Type	Quantity	Parameter									
		Depth to Water	PFAS	1,4-Dioxane	VOCs	SVOCs	Metals	Pesticides	Asbestos	Methane	Soil pH
Groundwater¹											
Existing Monitoring Wells	4	X	X	X	X	X	X	--	--	--	--
New Monitoring Wells	2	X	X	X	X	X	X	--	--	--	--
Total =	6										
Soil Vapor											
Soil Vapor Points	11	--	--	--	X	--	--	--	--	X	--
Total =	11										
Soil (Refer to Figure 7)											
Sewer Line	7	--	Note 2	Note 2	X	X	X	X	X	--	X
Force Main	11	--	Note 2	Note 2	X	X	X	X	X	--	X
Water Line	31	--	Note 2	Note 2	X	X	X	X	X	--	X
Combined Sewer & Water Line	16	--	Note 2	Note 2	X	X	X	X	X	--	X
Combined Force Main & Water Line	6	--	Note 2	Note 2	X	X	X	X	X	--	X
Combined Sewer Line, Force Main & Water Line	9	--	Note 2	Note 2	X	X	X	X	X	--	X
Total =	80										

Notes:

1 - Groundwater samples for 1,4-Dioxane, VOCs, SVOCs, and metals should include chemicals required by the CDPHE dewatering permit influent screen sampling list.

2 - Sampling soil for PFAS and 1,4-dioxane is contingent on results of groundwater sampling.

VOCs = Volatile Organic Compounds.

SVOCs = Semivolatile Organic Compounds.

PFAS = PolyFluoroAlkyl Substances.

**TABLE 4. CONCEPTUAL COST ESTIMATE FOR CONSTRUCTION DEWATERING SCENARIO
(1-WEEK DURATION) UNDER CDPHE REMEDIATION PERMIT
DENVER FEDERAL CENTER FOR GREEN MOUNTAIN WATER AND SANITATION DISTRICT
LAKEWOOD, COLORADO**

Item	Estimated Unit Cost	Unit	Qty	Cost
Permit Required Influent Screen Sampling	\$ 2,500.00	Ea.	1	\$ 2,500.00
Prepare Permit Application	\$ 500.00	Ea.	1	\$ 500.00
Groundwater Treatment (Rental)				
Mobilization	\$ 3,000.00	Ea.	1	\$ 3,000.00
Settling Tanks	\$ 2,000.00	Week	1	\$ 2,000.00
Chemicals for Flocculation	\$ 1,500.00	Week	1	\$ 1,500.00
Green Sand Filters	\$ 3,500.00	Week	1	\$ 3,500.00
Misc. Pumps and Equipment	\$ 1,200.00	Week	1	\$ 1,200.00
Operation Labor under certified ORC	\$ 300.00	Hr.	40	\$ 12,000.00
Weekly Discharge Sampling (Labor and Lab)	\$ 2,500.00	Week	1	\$ 2,500.00
Monthly DMR Reporting	\$ 300.00	Month	1	\$ 300.00
Permit Termination Application	\$ 200.00	Ea.	1	\$ 200.00
CDPHE Permit Fee	\$ 2,000.00	Per Year	1	\$ 2,000.00
			TOTAL =	\$ 31,000.00

Notes:

Above assumes remediation permit includes discharge criteria for naturally occurring metals.

Assumes dewatering requires 5 days of pumping and discharge.

Treatment costs are directly proportional to flow rate and duration. Above assumes a moderate flow rate of 30 GPM for a 1-week duration.

Costs are conceptual estimates only and are rounded to nearest thousand dollars.

FIGURES

L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\SINGLEFIGURES\1_GMWS-DFC-EVIRONINAREAS

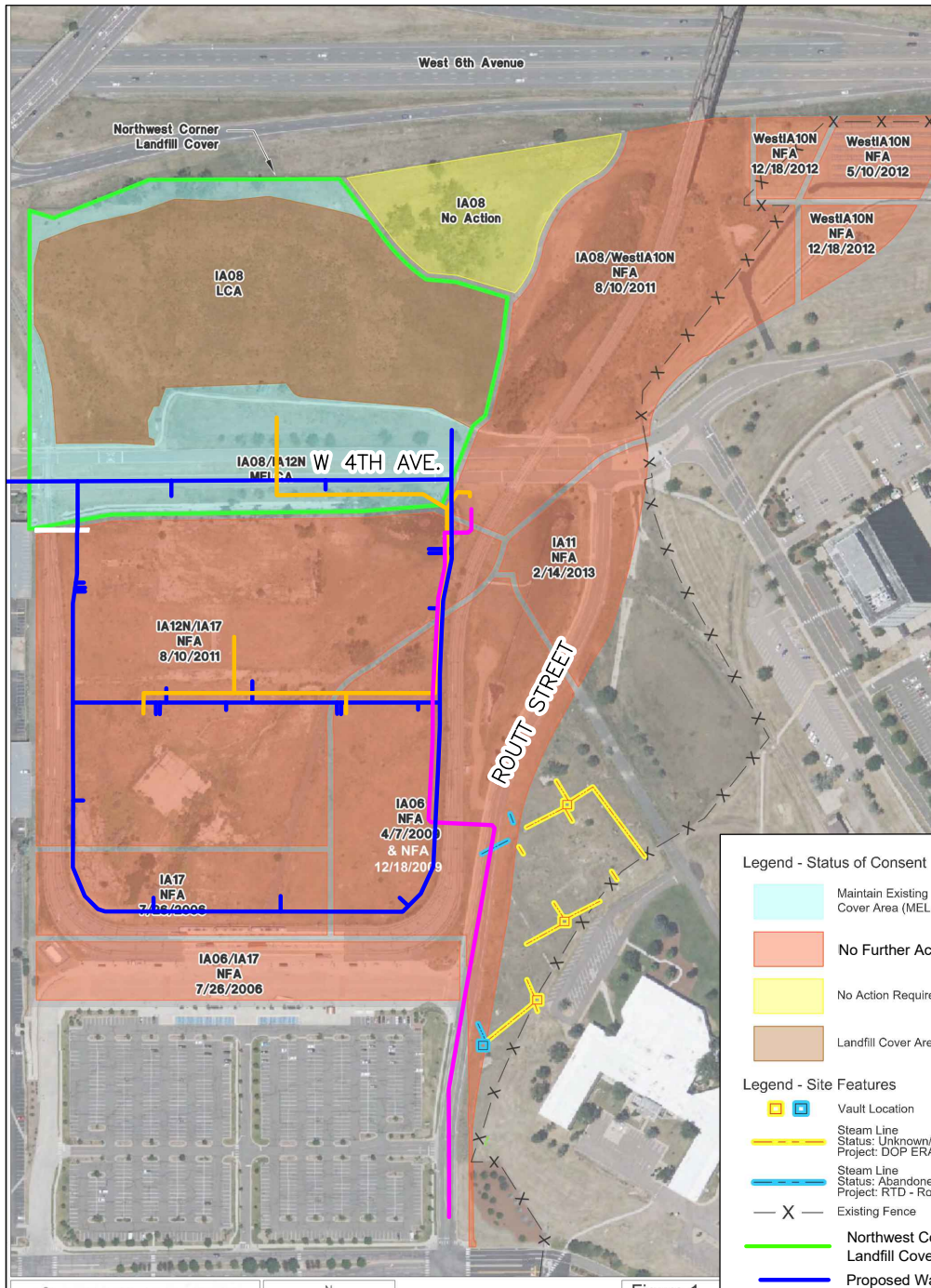
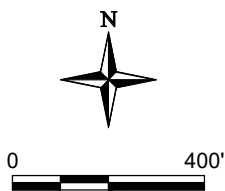


Image and Data Cite: Landmark Environmental, Inc., Publication: October 2022



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FIGURE 1

ENVIRONMENTAL STATUS BY INVESTIGATION AREA AND PROPOSED UTILITIES

**GREEN MOUNTAIN WATER AND SANITATION DISTRICT
DENVER FEDERAL CENTER - NORTHWEST CORNER
LAKEWOOD, COLORADO**

Drawn By: REP	Checked By: DH	Scale: 1" = 400'	Date: 8/15/24	File: 1_GMWS-DFC-EVIRONINAREAS
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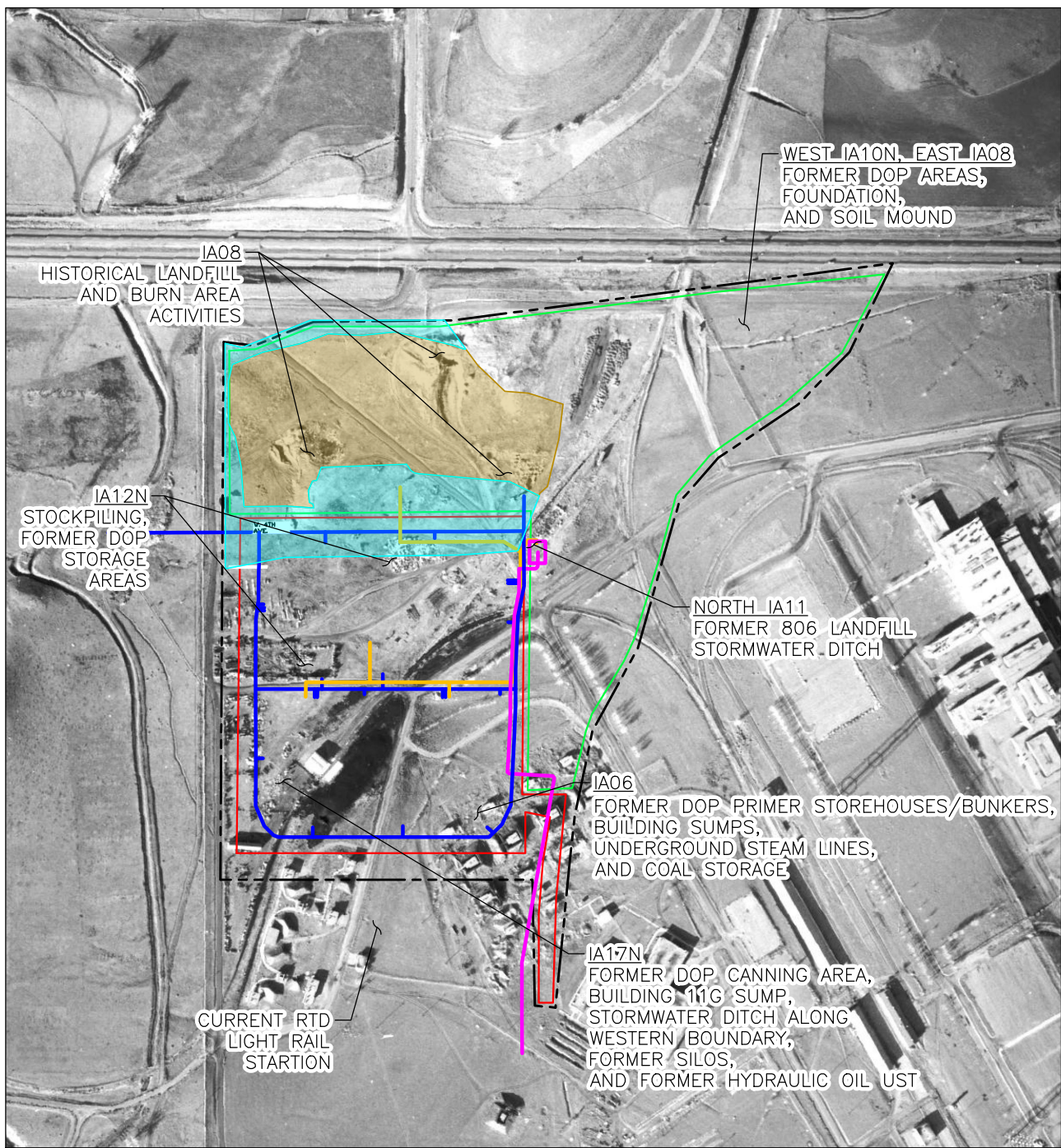
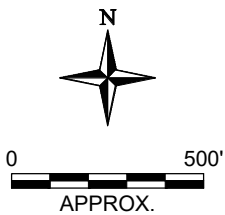


Image Cite: Unknown Source, Publication: 1954

EXPLANATION

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE PHASE 1 DEVELOPMENT AREA
- APPROXIMATE FUTURE DEVELOPMENT AREAS
- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE

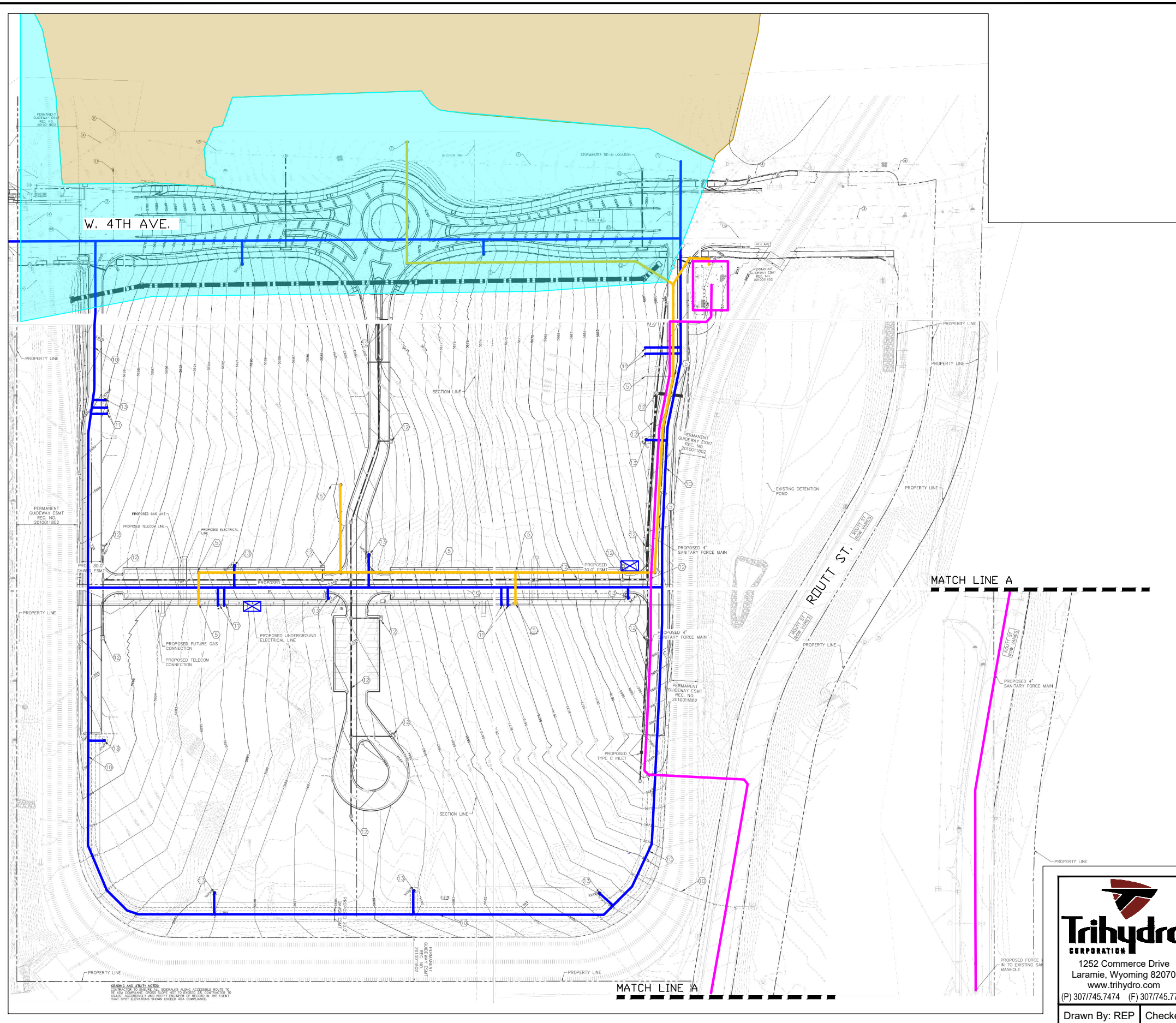


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FIGURE 2
1954 HISTORICAL AERIAL PHOTO WITH OVERLAY OF CURRENT DEVELOPMENT BOUNDARY & PROPOSED UTILITIES
GREEN MOUNTAIN WATER AND SANITATION DISTRICT DENVER FEDERAL CENTER - NORTHWEST CORNER LAKEWOOD, COLORADO

L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\FIGURES\2_GMWSD-DFC-HISTDEVL

L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\SINGLEFIGURES\3_GMWS-DFC-UTILITYPLAN



EXPLANATION

- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE
- PROPOSED STORM SEWER LINE

NOTE:
Base Map Adapted from Kimley-Horn Utility Plans
Circa: May 2024

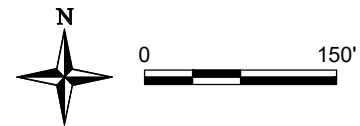


FIGURE 3

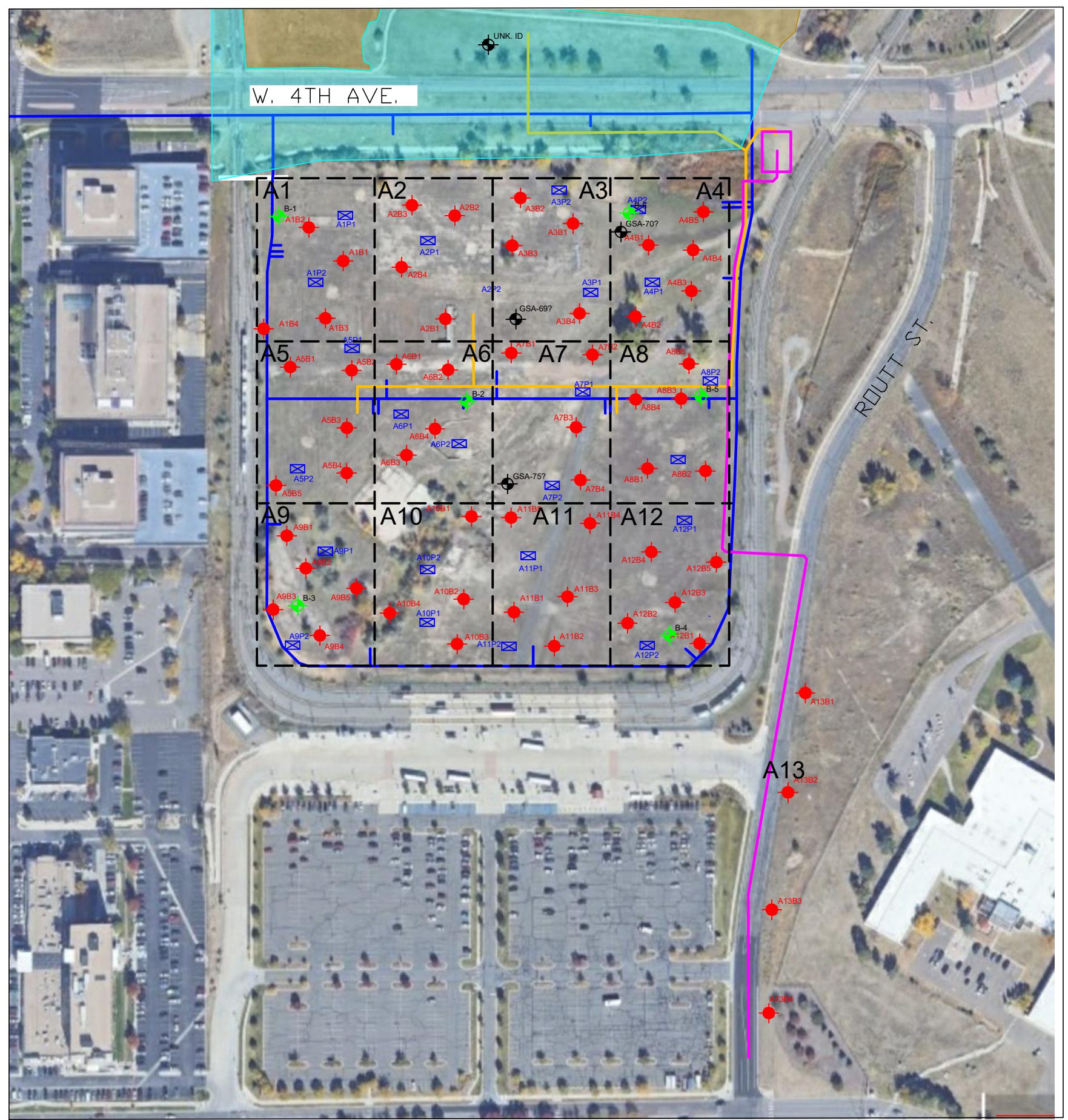
**GMWS D SOUTHERN PARCEL PROPOSED
WATER AND SANITARY SEWER UTILITY PLAN**

**GREEN MOUNTAIN WATER AND SANITATION DISTRICT
DENVER FEDERAL CENTER - NORTHWEST CORNER
LAKEWOOD, COLORADO**

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DRAWING AND UTILITY NOTES:
CONTRACTOR TO VERIFY ALL DIMENSIONS AND ACCESSIBLE ROUTE TO
BE ADA COMPLIANT. CROSS SLOPS NOT TO EXCEED 2% CONTRIBUTE TO
GRADE ACCORDING TO LOCAL SLOPE CRITERIA. IN THE EVENT
THAT SPOT ELEVATIONS SHOWN EXCEED ADA COMPLIANCE.

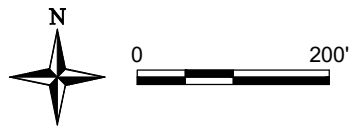
L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\FIGURES\4_GMWS-DFC-SAMPLELOC




EXPLANATION

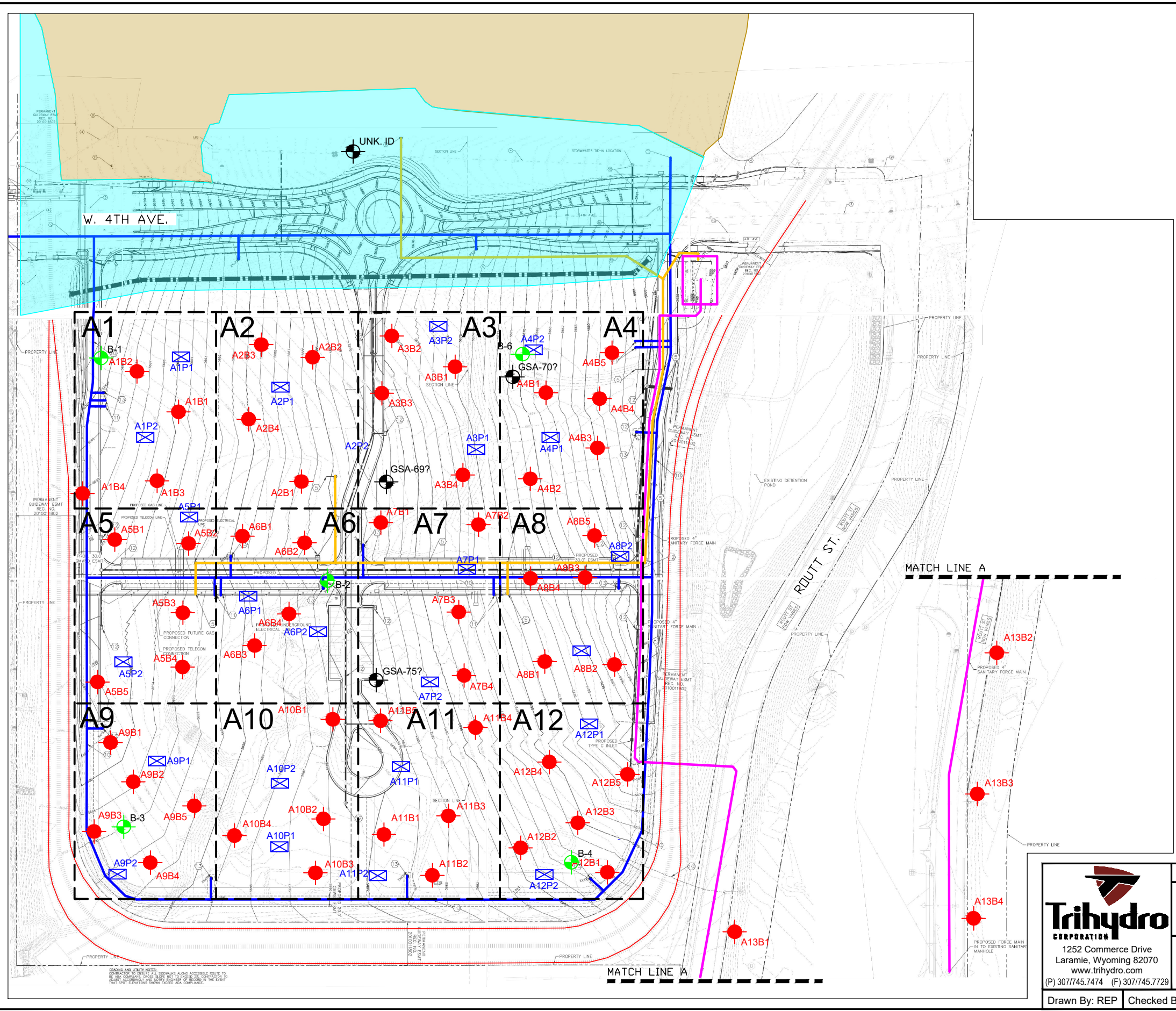
- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE
- VERTEX TEST PIT LOCATION
- VERTEX SOIL BORING LOCATION
- VERTEX SOIL CHARACTERIZATION GRID
- MONITORING WELL
- B-5
GEOTECHNICAL BORING - SEPT. 2023

NOTE:
Image and Data Cite: Vertex, Circa: November 2023



 1252 Commerce Drive Laramie, Wyoming 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729	FIGURE 4			
	SOUTHERN PARCEL SSI SAMPLE LOCATIONS, GEOTECHNICAL BORINGS, AND UPDATED UTILITY PLANS ON AERIAL PHOTOGRAPH GREEN MOUNTAIN WATER AND SANITATION DISTRICT DENVER FEDERAL CENTER - NORTHWEST CORNER LAKEWOOD, COLORADO			
Drawn By: REP	Checked By: DH	Scale: 1" = 200'	Date: 8/15/24	File: 4_GMWS-DFC-SAMPLELOC

L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\FIGURES\5_GMWS-DFC-SITEPLAN



EXPLANATION

- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE
- A9P2 VERTEX TEST PIT LOCATION
- A9B4 VERTEX SOIL BORING LOCATION
- VERTEX SOIL CHARACTERIZATION GRID
- N

 MONITORING WELL
- B-5

 GEOTECHNICAL BORING - SEPT. 2023

NOTE:
Base Map Adapted from Kimley-Horn Utility Plans
Circa: May 2024

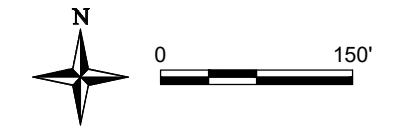


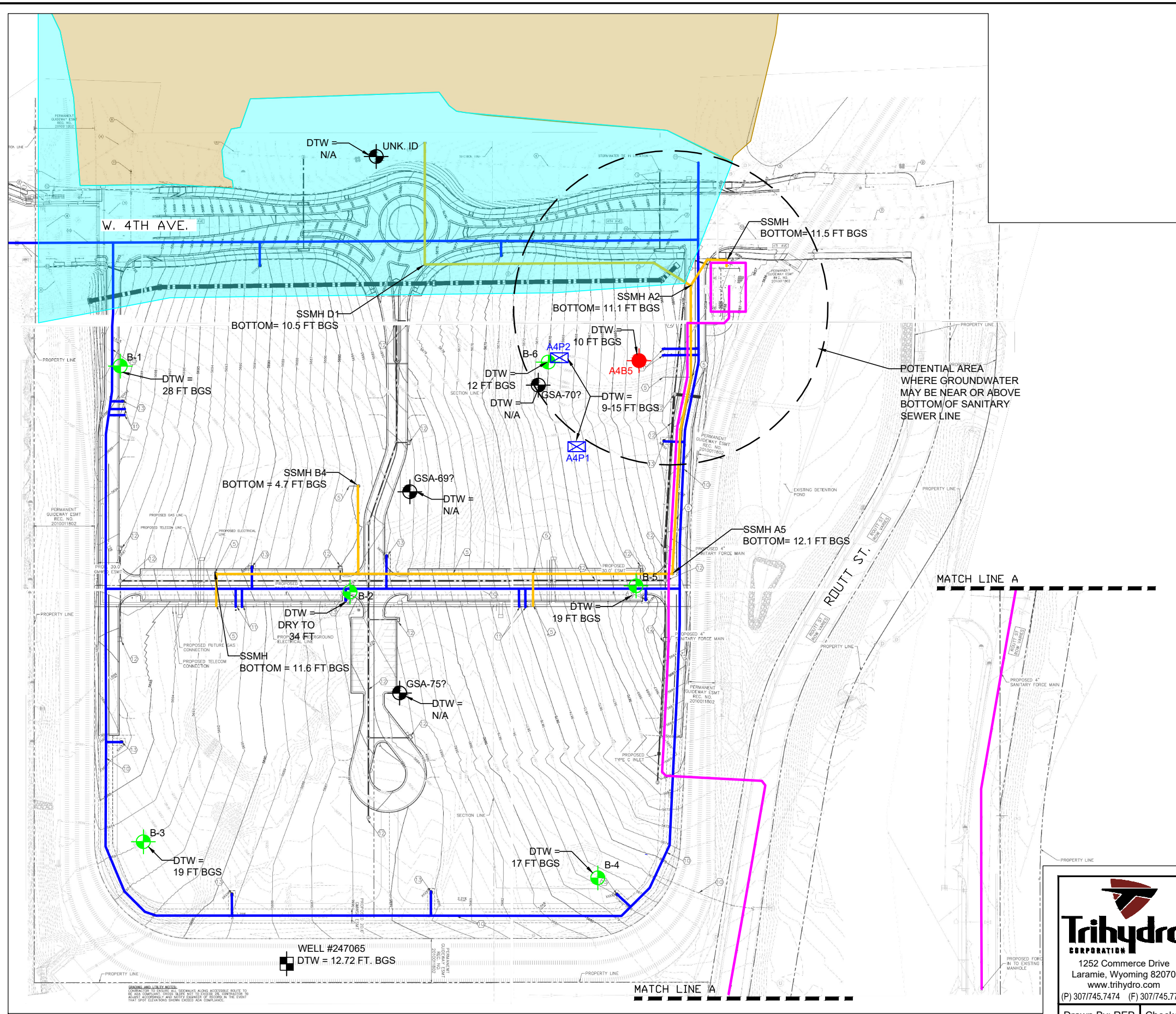
FIGURE 5

SOUTHERN PARCEL SSI BORINGS AND TEST PITS OVERLAIN ON UPDATED UTILITY MAP

**GREEN MOUNTAIN WATER AND SANITATION DISTRICT
DENVER FEDERAL CENTER - NORTHWEST CORNER
LAKEWOOD, COLORADO**

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L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\FIGURES\6_GWSD-DFC-DEPTHTOWATER



EXPLANATION

- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE
- A9P2 VERTEX TEST PIT LOCATION - AUG. 2023
- A9B4 VERTEX SOIL BORING LOCATION - AUG. 2023
- MONITORING WELL
- B-5 GEOTECHNICAL BORING - SEPT. 2023
- DTW - DEPTH TO WATER
- FT BGS - FEET BELOW GROUND SURFACE
- SSMH - SANITARY SEWER MANHOLE

NOTE:
Base Map Adapted from Kimley-Horn Utility Plans
Circa: May 2024

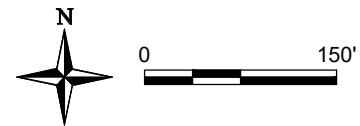
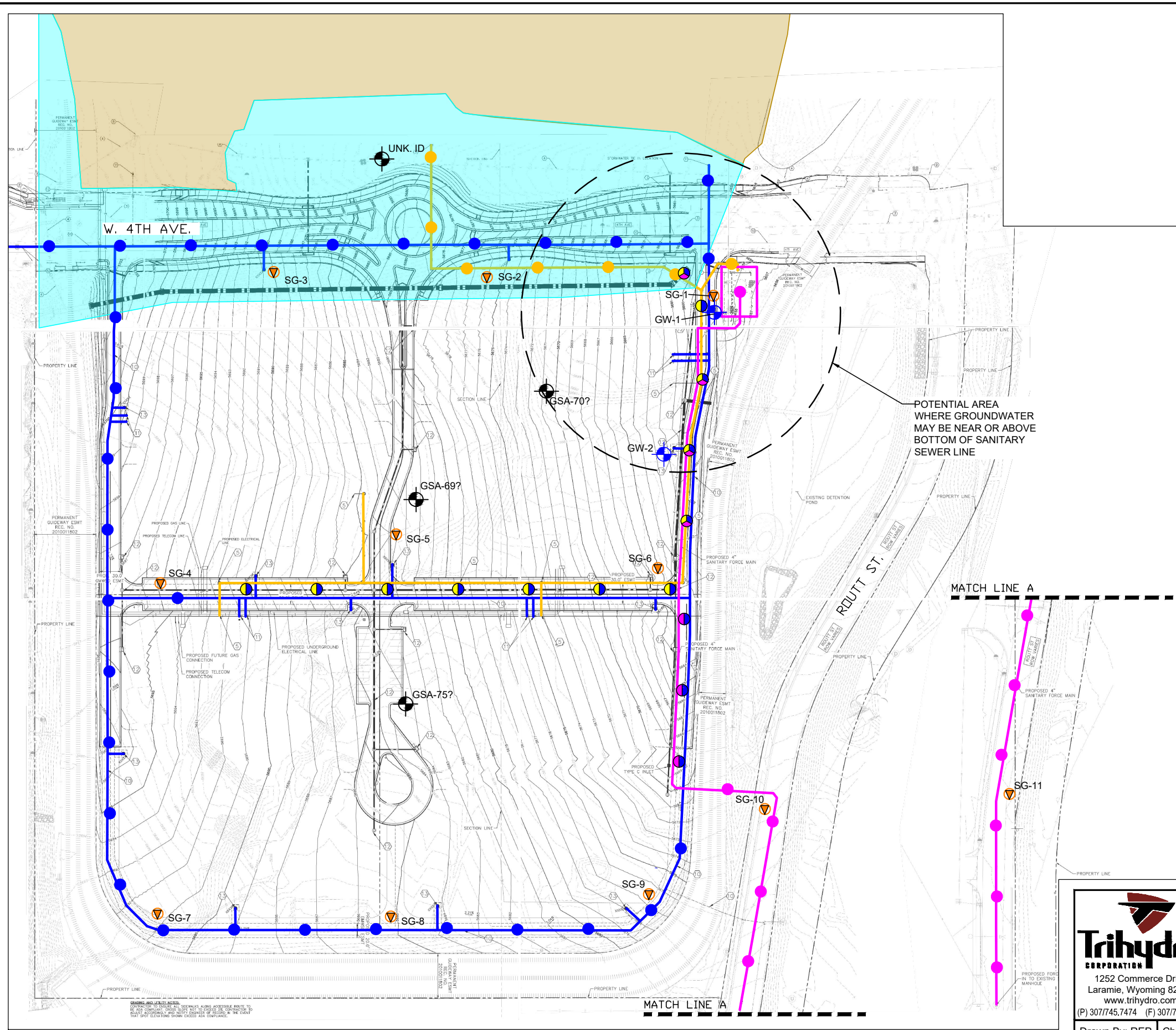


FIGURE 6

DEPTH TO GROUNDWATER (FALL 2023) AND DEPTH OF BOTTOM OF SANITARY SEWER MANHOLES
GREEN MOUNTAIN WATER AND SANITATION DISTRICT
DENVER FEDERAL CENTER - NORTHWEST CORNER
LAKEWOOD, COLORADO

Trihydro
CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

L:\GREEN MOUNTAIN WATER AND SANITATION DISTRICT - DOCUMENTS\CADD\FIGURES\7_GMWS-DFC-PROPSAMPLOC



EXPLANATION

- LANDFILL COVER AREA (LCA)
- MAINTAIN EXISTING LAND COVER AREA (MELCA)
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN LINE
- EXISTING MONITORING WELL

PROPOSED GROUNDWATER SAMPLING

- PROPOSED NEW MONITORING WELL (QTY. 1)
- EXISTING MONITORING WELL (QTY. 4)

PROPOSED SOIL GAS SAMPLING

- PROPOSED SOIL GAS POINT (QTY. 11)

PROPOSED SOIL SAMPLING (~EVERY 100 LINEAR FT)

- PROPOSED SOIL SAMPLE - SEWER LINE DEPTH (QTY. 7)
- PROPOSED SOIL SAMPLE - FORCE MAIN DEPTH (QTY. 11)
- PROPOSED SOIL SAMPLE - WATER LINE DEPTH (QTY. 31)
- PROPOSED SOIL SAMPLE - COMBINED SEWER LINE & WATER LINE DEPTH (QTY. 8 x 2 = 16)
- PROPOSED SOIL SAMPLE - COMBINED FORCE MAIN & WATER LINE DEPTH (QTY. 3 x 2 = 6)
- PROPOSED SOIL SAMPLE - COMBINED SEWER LINE, FORCE MAIN & WATER LINE DEPTH (QTY. 3 x 3 = 9)

NOTE:
Base Map Adapted from Kimley-Horn Utility Plans
Circa: May 2024

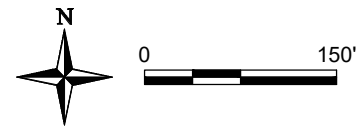


FIGURE 7

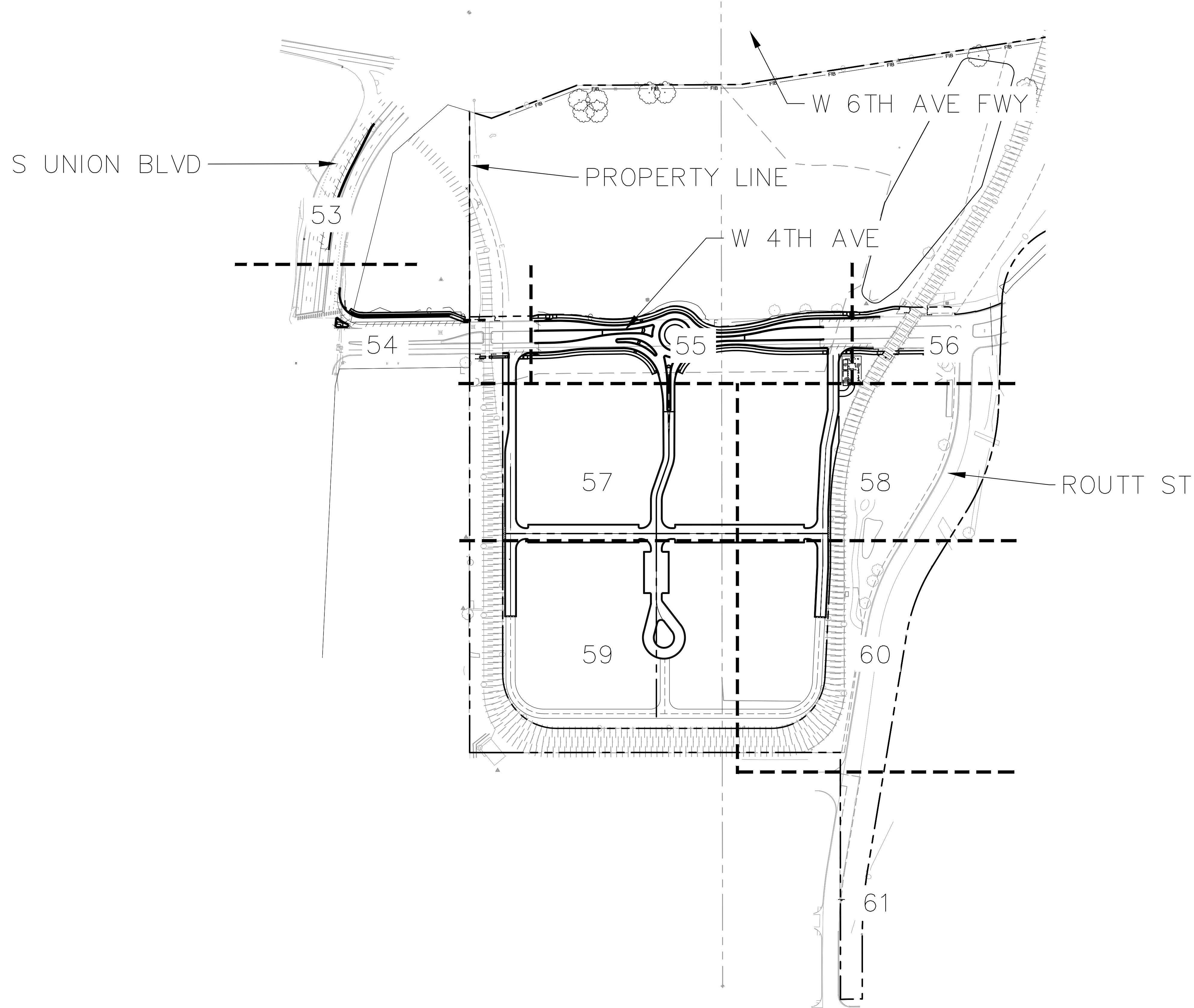


PROPOSED CONFIRMATION SAMPLE LOCATIONS
GREEN MOUNTAIN WATER AND SANITATION DISTRICT
DENVER FEDERAL CENTER - NORTHWEST CORNER
LAKEWOOD, COLORADO

ATTACHMENT A

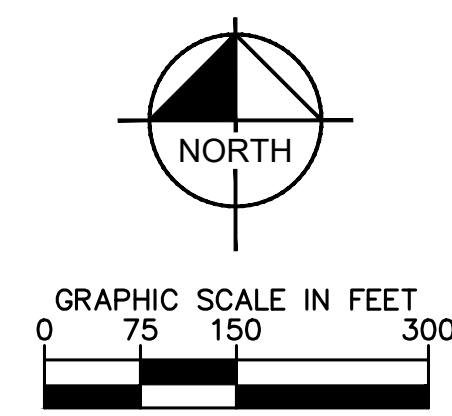
UTILITY PLANS

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OVERALL RAW CUT/FILL DATA

	VOLUME (CUBIC YDS)
CUT	9,780
FILL	90,600
NET FILL	80,820



**CITY OF LAKEWOOD
PLANNING DEPARTMENT**

REVIEW IS FOR COMPLIANCE WITH THE MAJOR
SITE PLAN REQUIREMENTS OUTLINED IN
ARTICLE 2 OF THE CITY OF LAKEWOOD ZONING
ORDINANCE.

REVIEWED BY: _____ APPROVED BY: _____

NO.	REVISION	BY	DATE	APPR

Kimley»Horn

© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
DRAWN BY: MMR
CHECKED BY: KEW
DATE: 05/31/2024

THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
GRADING AND UTILITY OVERALL

PRELIMINARY
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NOT FOR
CONSTRUCTION

Kimley»Horn
Kimley-Horn and Associates, Inc.

PROJECT NO.
096412006

SHEET

52

SITE ADDRESS: _____
PLANNING CASE NO. ZP24-0005

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE. IT IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

LEGEND:

	PROPERTY LINE		ASPHALT PAVEMENT		CONCRETE PEDESTRIAN CURB RAMP
	PROPOSED MAJOR CONTOURS		CONCRETE MEDIAN COVER		PEDESTRIAN RAMP DETECTION PLATE
	PROPOSED MINOR CONTOURS		CONCRETE PAVEMENT		LANDSCAPING AREA
	EXISTING MAJOR CONTOURS		CONCRETE SIDEWALK		
	EXISTING MINOR CONTOURS				
	PROPOSED STORM PIPES				
	PROPOSED MANHOLE				
	PROPOSED STORM INLET				
	PROPOSED SANITARY SEWER LINE				
	PROPOSED WATER LINE				
	EXISTING STORM LINE				
	EXISTING GAS LINE				
	EXISTING WATER LINE				
	EXISTING SANITARY SEWER LINE				
	EXISTING ELECTRIC LINE				
	EXISTING FENCE LINE				

ABBREVIATIONS:

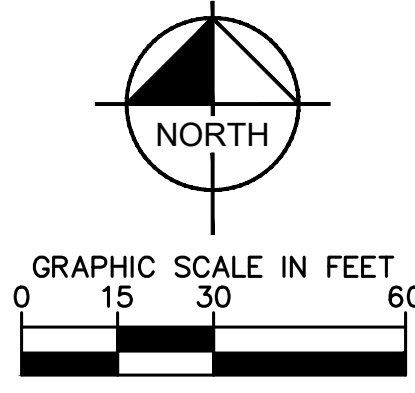
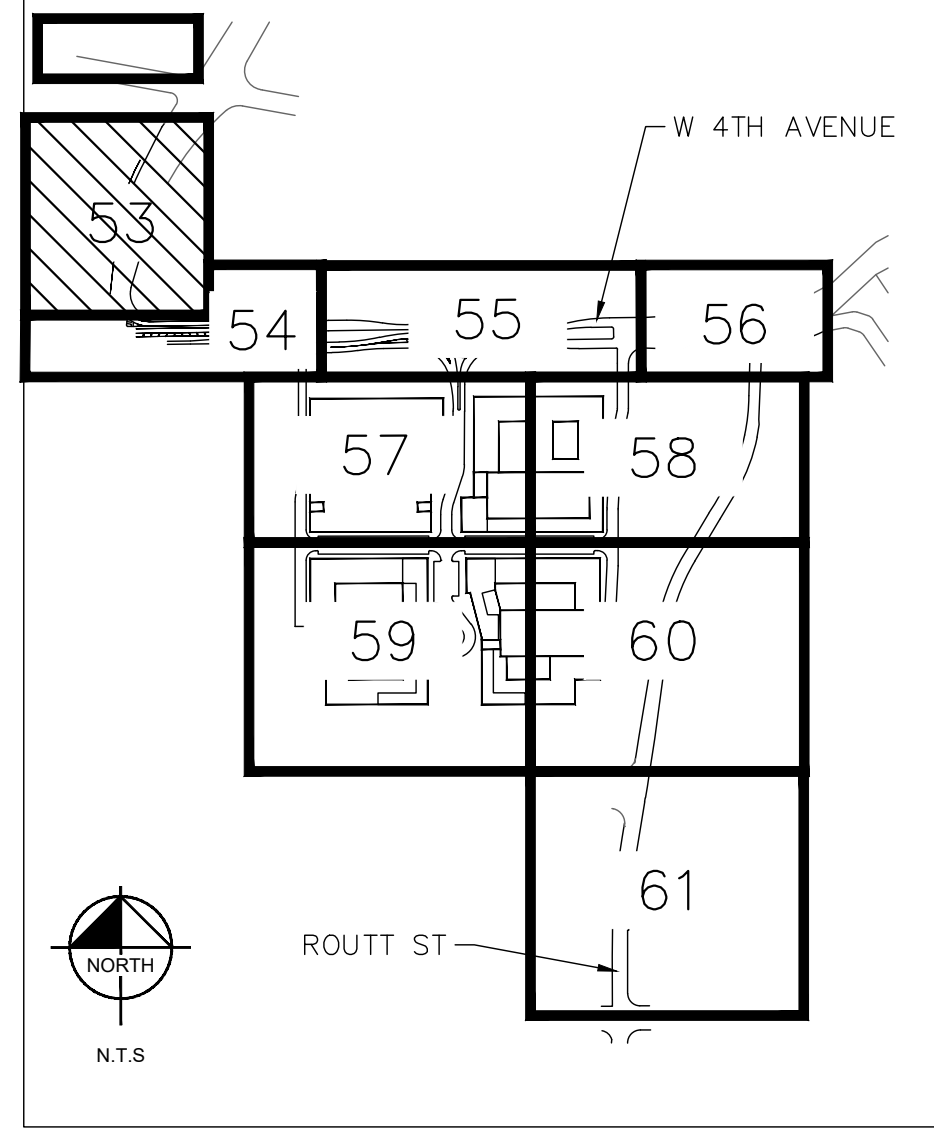
FG	FINISH GRADE	FFE	FINISH FLOOR ELEVATION
FL	FLOWLINE	SW	SIDEWALK
ME	MATCH EXISTING	HP	HIGH POINT
LP	LOW POINT	EG	EXISTING GRADE

GRADING AND UTILITY NOTES:

1. CONTRACTOR TO ENSURE ALL SIDEWALKS ALONG ACCESSIBLE ROUTE TO BE ADA COMPLIANT. CROSS SLOPE NOT TO EXCEED 2%. CONTRACTOR TO ADJUST ACCORDINGLY AND NOTIFY ENGINEER OF RECORD IN THE EVENT THAT SPOT ELEVATIONS SHOWN EXCEED ADA COMPLIANCE.

SITE KEYNOTES:

- ① EXISTING FIRE HYDRANT
- ② EXISTING WATER MAIN
- ③ EXISTING UNDERGROUND ELECTRIC LINE
- ④ EXISTING STORM SEWER MAIN
- ⑤ PROPOSED SANITARY SEWER INFRASTRUCTURE
- ⑥ EXISTING STORM INLET
- ⑨ EXISTING COMMUNICATIONS LINE
- ⑩ PROPOSED WATER MAIN
- ⑪ PROPOSED WATER STUB
- ⑫ PROPOSED STORM INFRASTRUCTURE
- ⑬ PROPOSED FIRE HYDRANT



CITY OF LAKEWOOD PLANNING DEPARTMENT
REVIEW IS FOR COMPLIANCE WITH THE MAJOR SITE PLAN REQUIREMENTS OUTLINED IN ARTICLE 2 OF THE CITY OF LAKEWOOD ZONING ORDINANCE.

NO.	REVISION	BY	DATE

Kimley»Horn
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GREENWOOD VILLAGE, CO 80111 (303) 228-2300

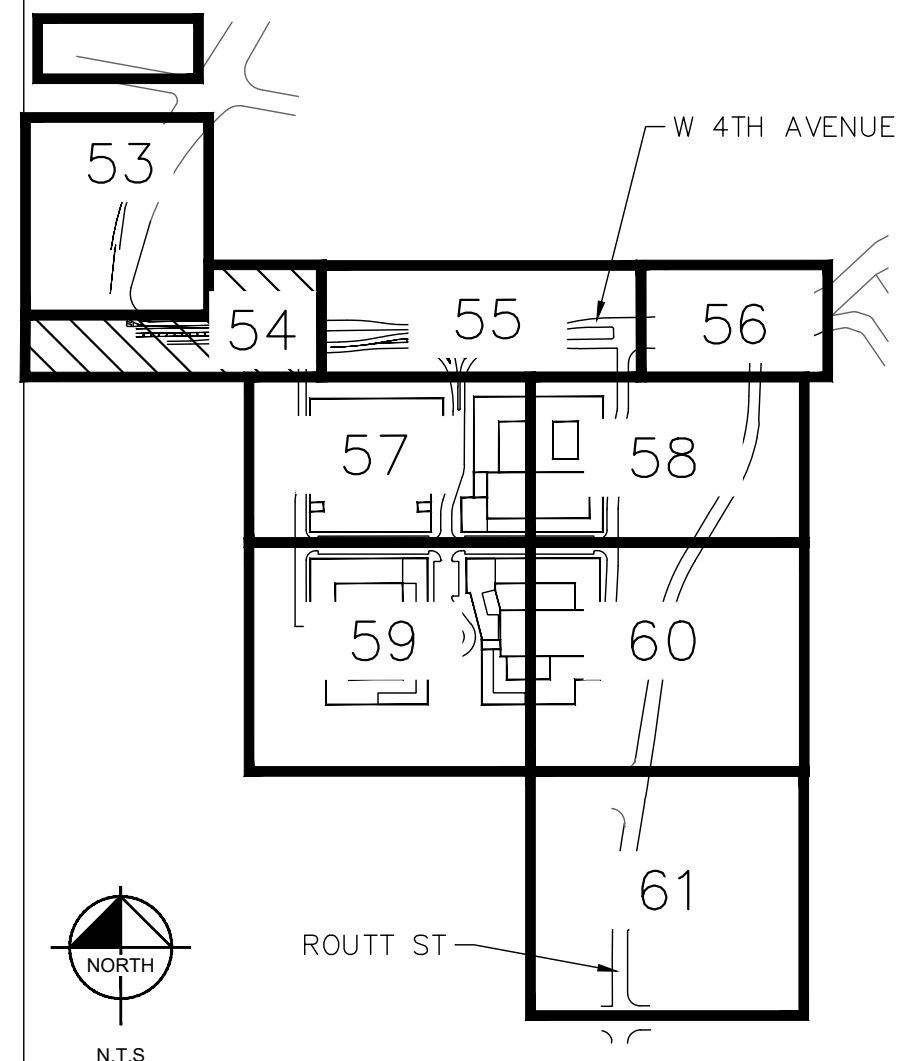
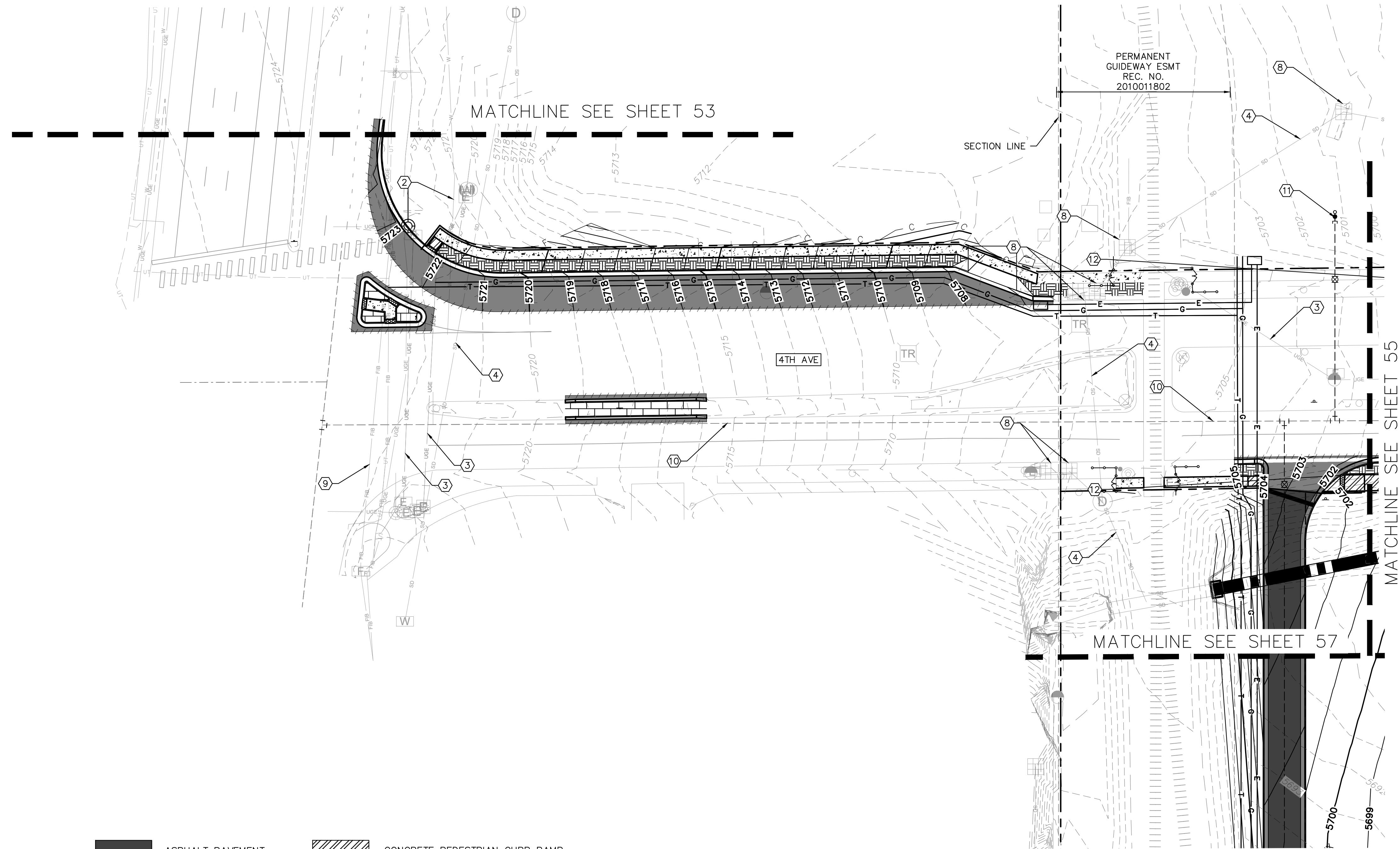
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DATE: 05/31/2024

THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
GRADING AND UTILITY PLAN (1 OF 9)

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096412006
SHEET
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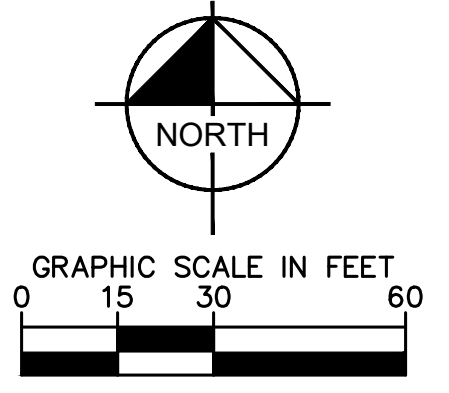
- LEGEND:**
- PROPERTY LINE
 - 50 --- PROPOSED MAJOR CONTOURS
 - 49 --- PROPOSED MINOR CONTOURS
 - 50 --- EXISTING MAJOR CONTOURS
 - 49 --- EXISTING MINOR CONTOURS
 - PROPOSED STORM PIPES
 - ⊕ PROPOSED MANHOLE
 - ⊕ PROPOSED STORM INLET
 - S --- PROPOSED SANITARY SEWER LINE
 - W --- PROPOSED WATER LINE
 - SD --- EXISTING STORM LINE
 - G --- EXISTING GAS LINE
 - W --- EXISTING WATER LINE
 - S --- EXISTING SANITARY SEWER LINE
 - UGE --- EXISTING ELECTRIC LINE
 - --- EXISTING FENCE LINE
- SITE KEYNOTES**
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 - ② EXISTING WATER MAIN
 - ③ EXISTING UNDERGROUND ELECTRIC LINE
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 - ⑧ EXISTING STORM INLET
 - ⑨ EXISTING COMMUNICATIONS LINE
 - ⑩ PROPOSED WATER MAIN
 - ⑪ PROPOSED WATER STUB
 - ⑫ PROPOSED STORM INFRASTRUCTURE
 - ⑬ PROPOSED FIRE HYDRANT

- ASPHALT PAVEMENT
- CONCRETE PEDESTRIAN CURB RAMP
- CONCRETE MEDIAN COVER
- PEDESTRIAN RAMP DETECTION PLATE
- CONCRETE PAVEMENT
- LANDSCAPING AREA
- CONCRETE SIDEWALK

- ABBREVIATIONS**
- FG FINISH GRADE
 - FL FLOWLINE
 - ME MATCH EXISTING
 - LP LOW POINT
 - FFE FINISH FLOOR ELEVATION
 - SW SIDEWALK
 - HP HIGH POINT
 - EG EXISTING GRADE

GRADING AND UTILITY NOTES:

- CONTRACTOR TO ENSURE ALL SIDEWALKS ALONG ACCESSIBLE ROUTE TO BE ADA COMPLIANT. CROSS SLOPE NOT TO EXCEED 2%. CONTRACTOR TO ADJUST ACCORDINGLY AND NOTIFY ENGINEER OF RECORD IN THE EVENT THAT SPOT ELEVATIONS SHOWN EXCEED ADA COMPLIANCE.



**CITY OF LAKEWOOD
PLANNING DEPARTMENT**

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REVIEWED BY: _____ APPROVED BY: _____

THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
GRADING AND UTILITY PLAN (2 OF 9)

DESIGNED BY: MMR
DRAWN BY: MMR
CHECKED BY: KEW
DATE: 05/31/2024

NO.	REVISION	BY	DATE	APPR

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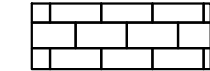
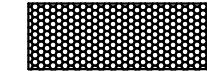



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Kimley-Horn and Associates, Inc.

PROJECT NO.
096412006

SHEET
54

SITE ADDRESS: _____
PLANNING CASE NO. ZP24-0005

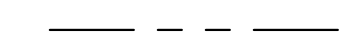
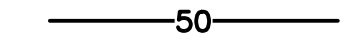
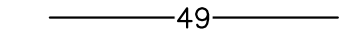

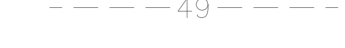


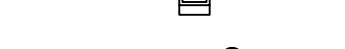





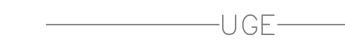


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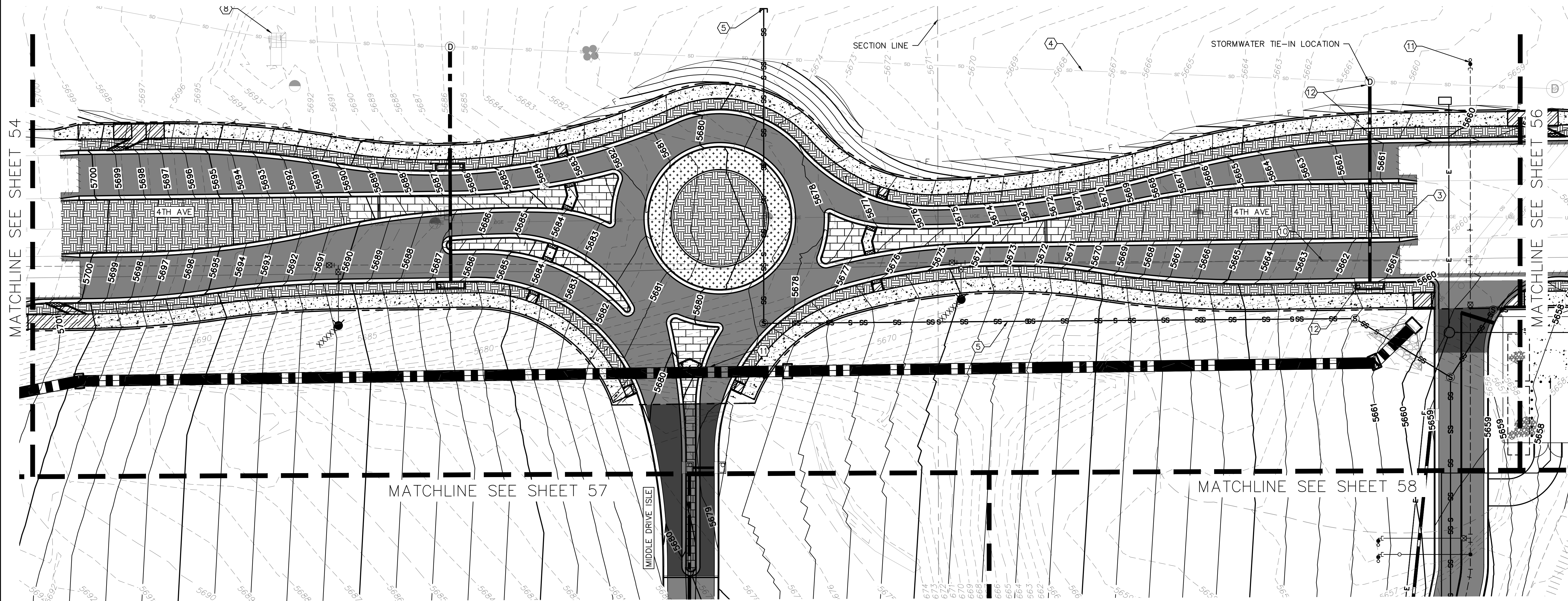
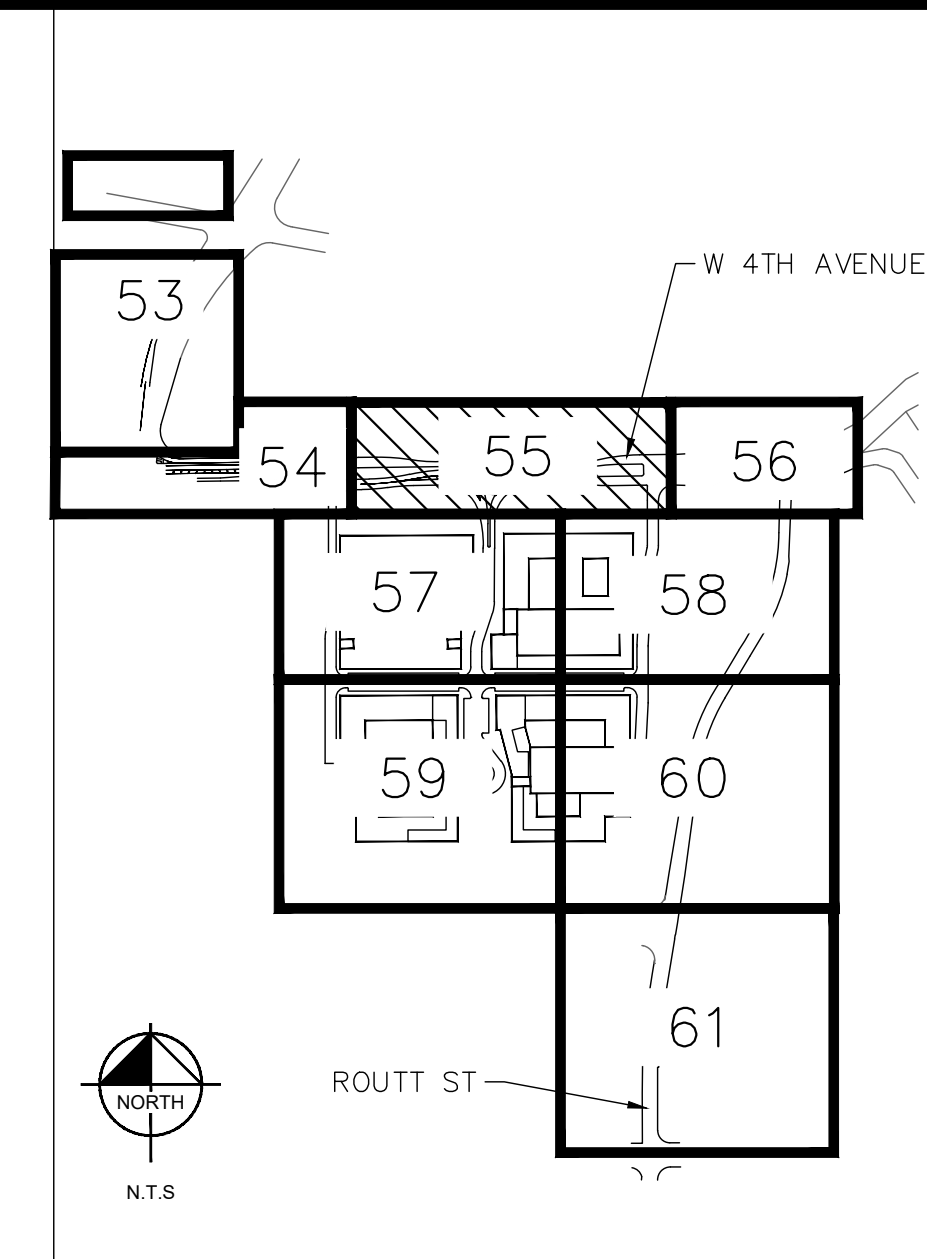
	ASPHALT PAVEMENT		CONCRETE PEDESTRIAN CURB RAMP
	CONCRETE MEDIAN COVER		PEDESTRIAN RAMP DETECTION PLATE
	CONCRETE PAVEMENT		LANDSCAPING AREA
	CONCRETE SIDEWALK		

SITE KEYNOTES

- ① EXISTING FIRE HYDRANT
- ② EXISTING WATER MAIN
- ③ EXISTING UNDERGROUND ELECTRIC LINE
- ④ EXISTING STORM SEWER MAIN
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- ⑧ EXISTING STORM INLET
- ⑨ EXISTING COMMUNICATIONS LINE
- ⑩ PROPOSED WATER MAIN
- ⑪ PROPOSED WATER STUB
- ⑫ PROPOSED STORM INFRASTRUCTURE
- ⑬ PROPOSED FIRE HYDRANT

LEGEND:

	PROPERTY LINE
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED STORM PIPES
	PROPOSED MANHOLE
	PROPOSED STORM INLET
	PROPOSED SANITARY SEWER LINE
	PROPOSED WATER LINE
	EXISTING STORM LINE
	EXISTING GAS LINE
	EXISTING WATER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING ELECTRIC LINE
	EXISTING FENCE LINE

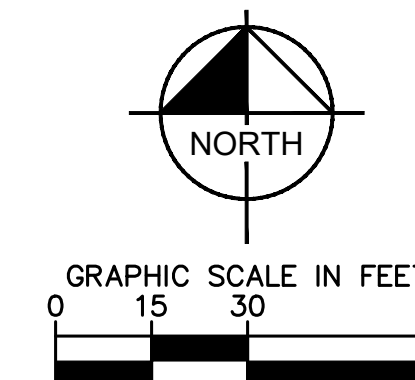


ABBREVIATIONS

FG	FINISH GRADE	FFE	FINISH FLOOR ELEVATION
FL	FLOWLINE	SW	SIDEWALK
ME	MATCH EXISTING	HP	HIGH POINT
LP	LOW POINT	EG	EXISTING GRADE

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**CITY OF LAKEWOOD
PLANNING DEPARTMENT**
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REVIEWED BY: _____ APPROVED BY: _____

NO.	REVISION	BY	DATE	APPR

Kimley»Horn
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6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
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CHECKED BY: KEW
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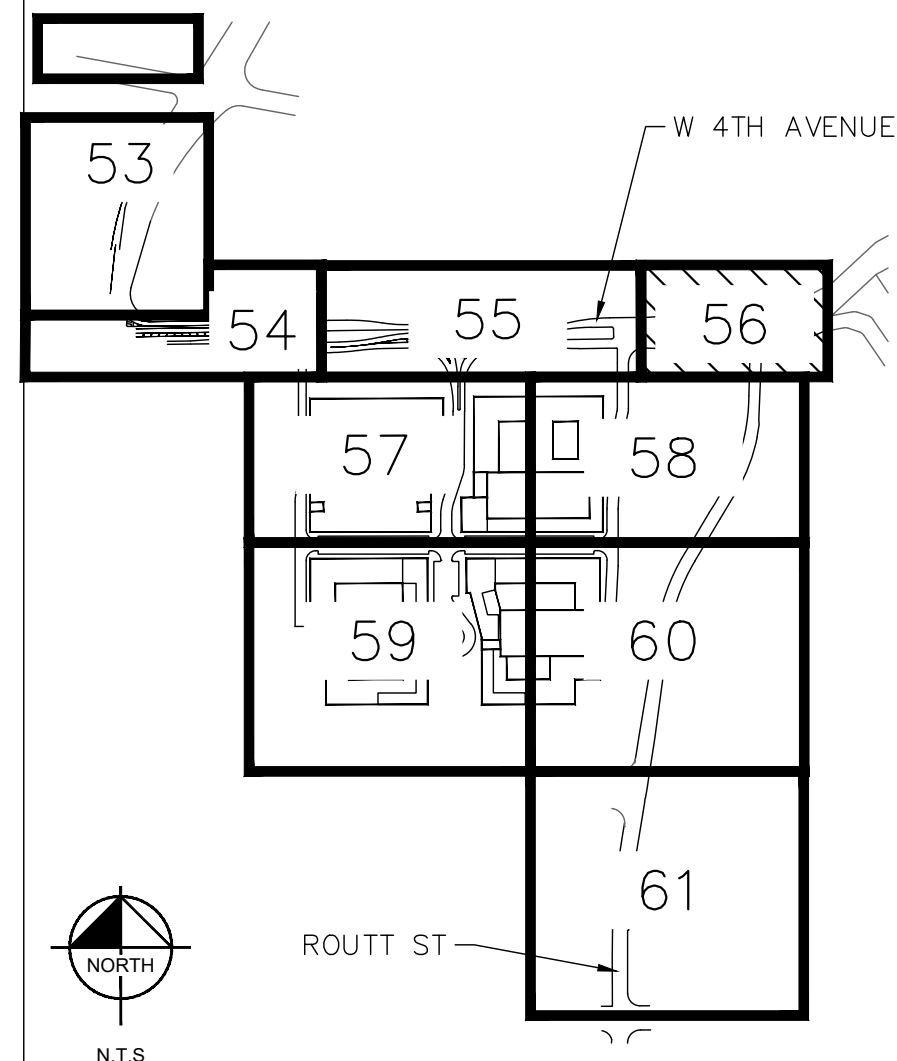
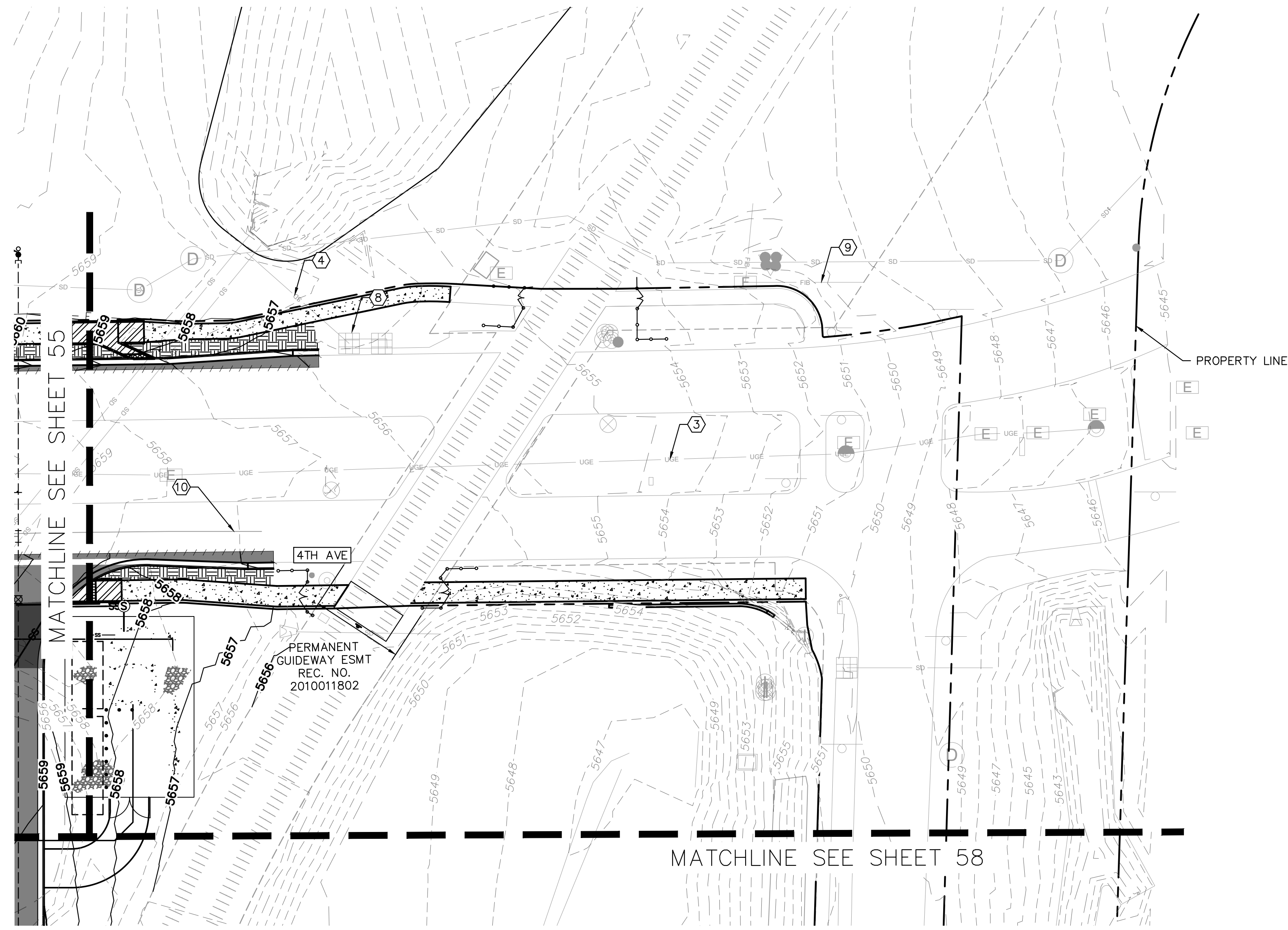
THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
GRADING AND UTILITY PLAN (3 OF 9)

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PROJECT NO.
096412006
SHEET
55

SITE ADDRESS: _____
PLANNING CASE NO. ZP24-0005

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LEGEND:

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—49—	PROPOSED MINOR CONTOURS
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- - -49-	EXISTING MINOR CONTOURS
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⊕	PROPOSED MANHOLE
⊞	PROPOSED STORM INLET
—S—	PROPOSED SANITARY SEWER LINE
—W—	PROPOSED WATER LINE
—SD—	EXISTING STORM LINE
—G—	EXISTING GAS LINE
—W—	EXISTING WATER LINE
—S—	EXISTING SANITARY SEWER LINE
—UGE—	EXISTING ELECTRIC LINE
—O—	EXISTING FENCE LINE

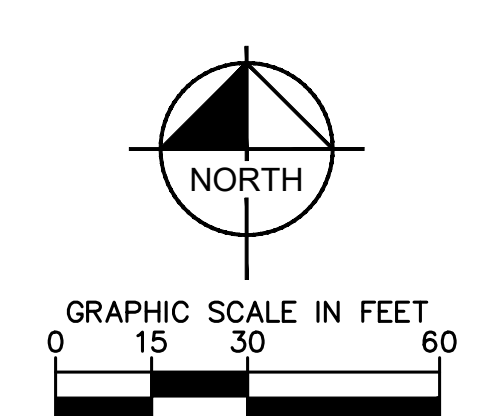
SITE KEYNOTES

①	EXISTING FIRE HYDRANT
②	EXISTING WATER MAIN
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⑫	PROPOSED STORM INFRASTRUCTURE
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ABBREVIATIONS
 FG FINISH GRADE
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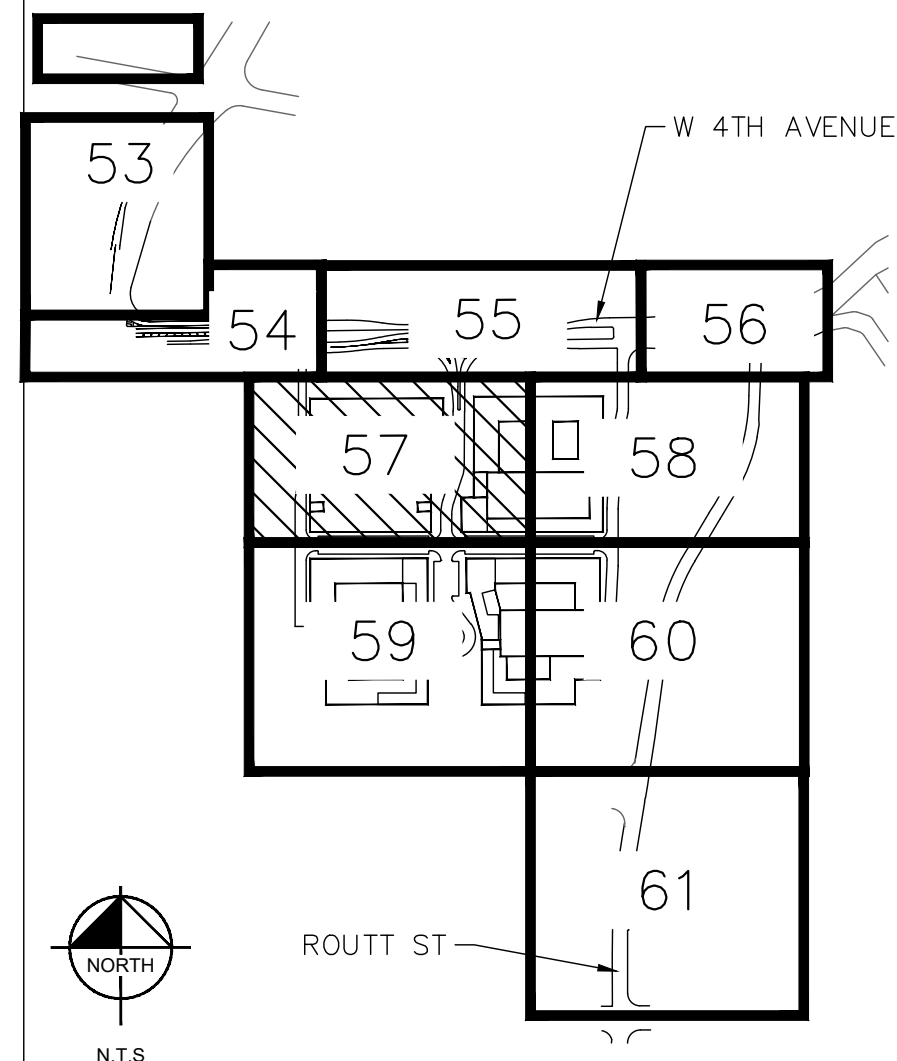
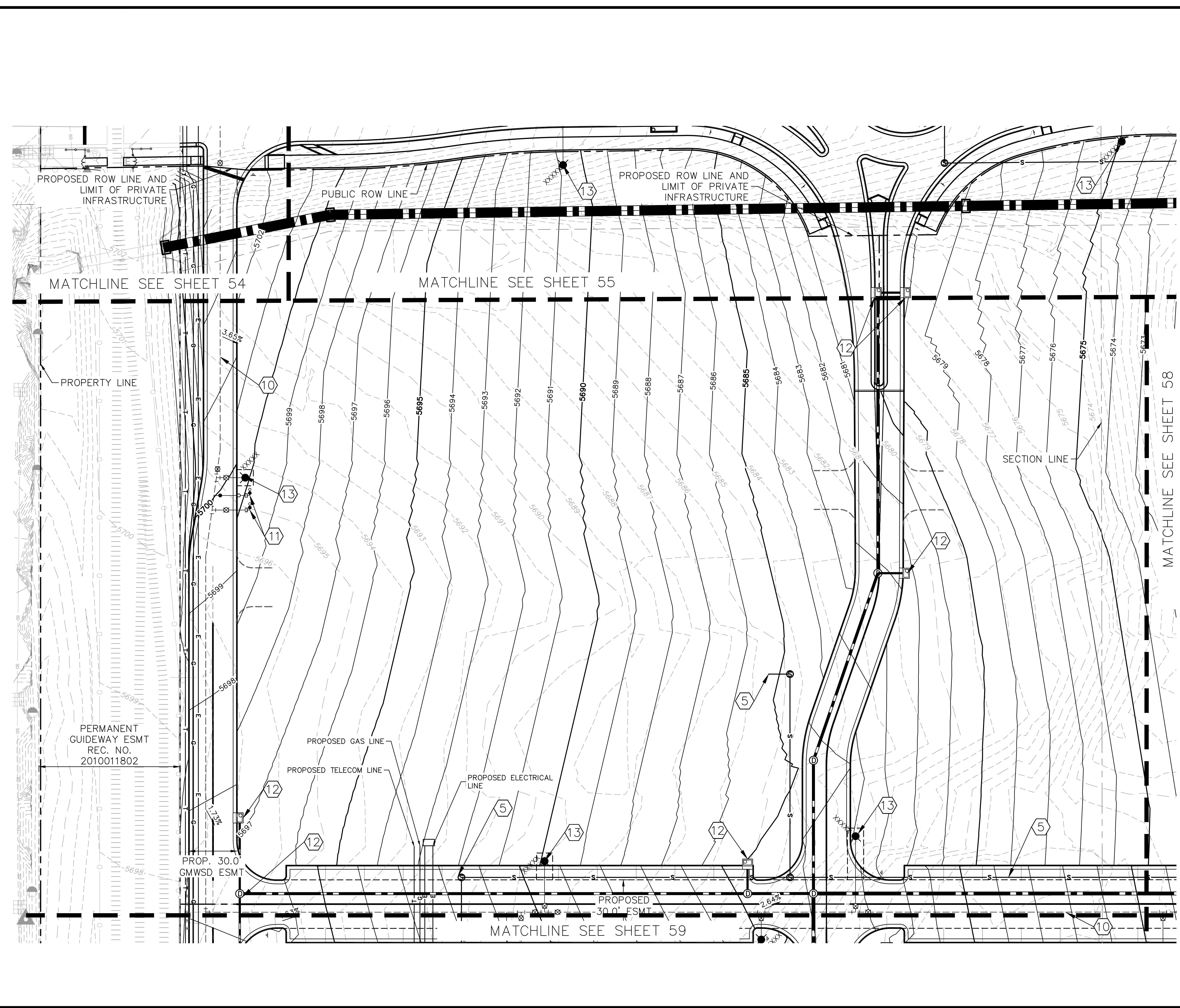
GRADING AND UTILITY NOTES:
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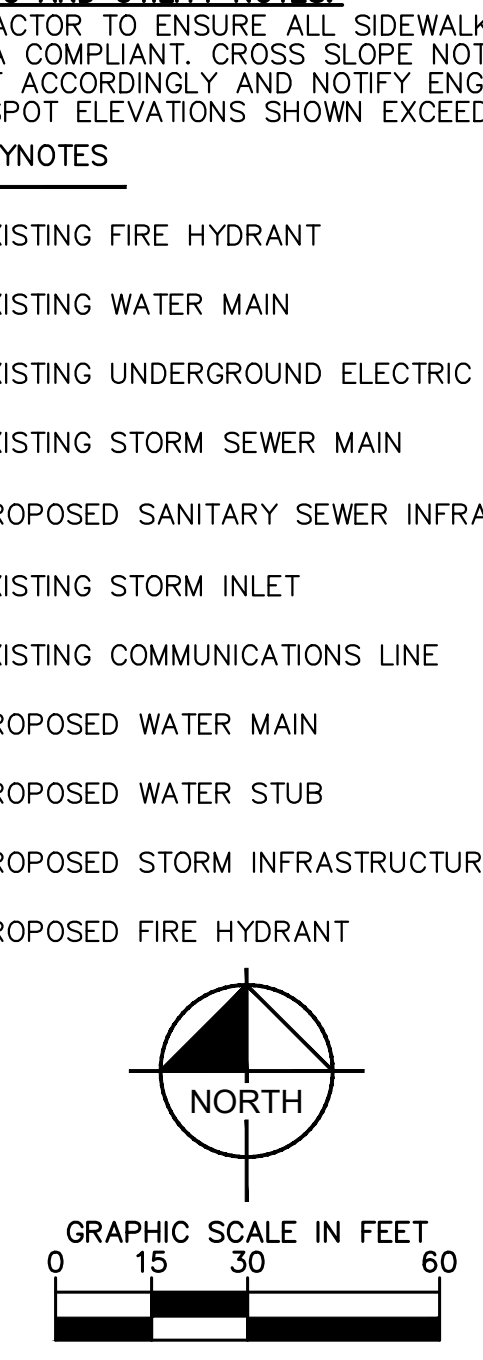
CITY OF LAKEWOOD PLANNING DEPARTMENT
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<p>THE BEND - INFRASTRUCTURE LAKEWOOD, COLORADO GRADING AND UTILITY PLAN (4 OF 9)</p>	
<p>PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION</p>	
<p>PROJECT NO. 096412006</p>	
<p>SHEET 56</p>	
<p>REVIEWED BY: _____ APPROVED BY: _____</p>	
<p>SITE ADDRESS: _____ PLANNING CASE NO. ZP24-0005</p>	

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 - ⊙ — PROPOSED MANHOLE
 - ⊠ — PROPOSED STORM INLET
 - S — PROPOSED SANITARY SEWER LINE
 - W — PROPOSED WATER LINE
 - SD — EXISTING STORM LINE
 - G — EXISTING GAS LINE
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 CONTRACTOR TO ENSURE ALL SIDEWALKS ALONG ACCESSIBLE RC BE ADA COMPLIANT. CROSS SLOPE NOT TO EXCEED 2%. CONTRA ADJUST ACCORDINGLY AND NOTIFY ENGINEER OF RECORD IN THAT SPOT ELEVATIONS SHOWN EXCEED ADA COMPLIANCE.
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 - ③ EXISTING UNDERGROUND ELECTRIC LINE
 - ④ EXISTING STORM SEWER MAIN
 - ⑤ PROPOSED SANITARY SEWER INFRASTRUCTURE
 - ⑧ EXISTING STORM INLET
 - ⑨ EXISTING COMMUNICATIONS LINE
 - ⑩ PROPOSED WATER MAIN
 - ⑪ PROPOSED WATER STUB
 - ⑫ PROPOSED STORM INFRASTRUCTURE
 - ⑬ PROPOSED FIRE HYDRANT



**CITY OF LAKEWOOD
 PLANNING DEPARTMENT**
 REVIEW IS FOR COMPLIANCE WITH THE MAJOR
 SITE PLAN REQUIREMENTS OUTLINED IN
 ARTICLE 2 OF THE CITY OF LAKEWOOD ZONING
 ORDINANCE.

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**THE BEND - INFRASTRUCTURE
 LAKEWOOD, COLORADO
 GRADING AND UTILITY PLAN (5 OF 9)**

REVISION NO. BY DATE

APPROVED BY: _____

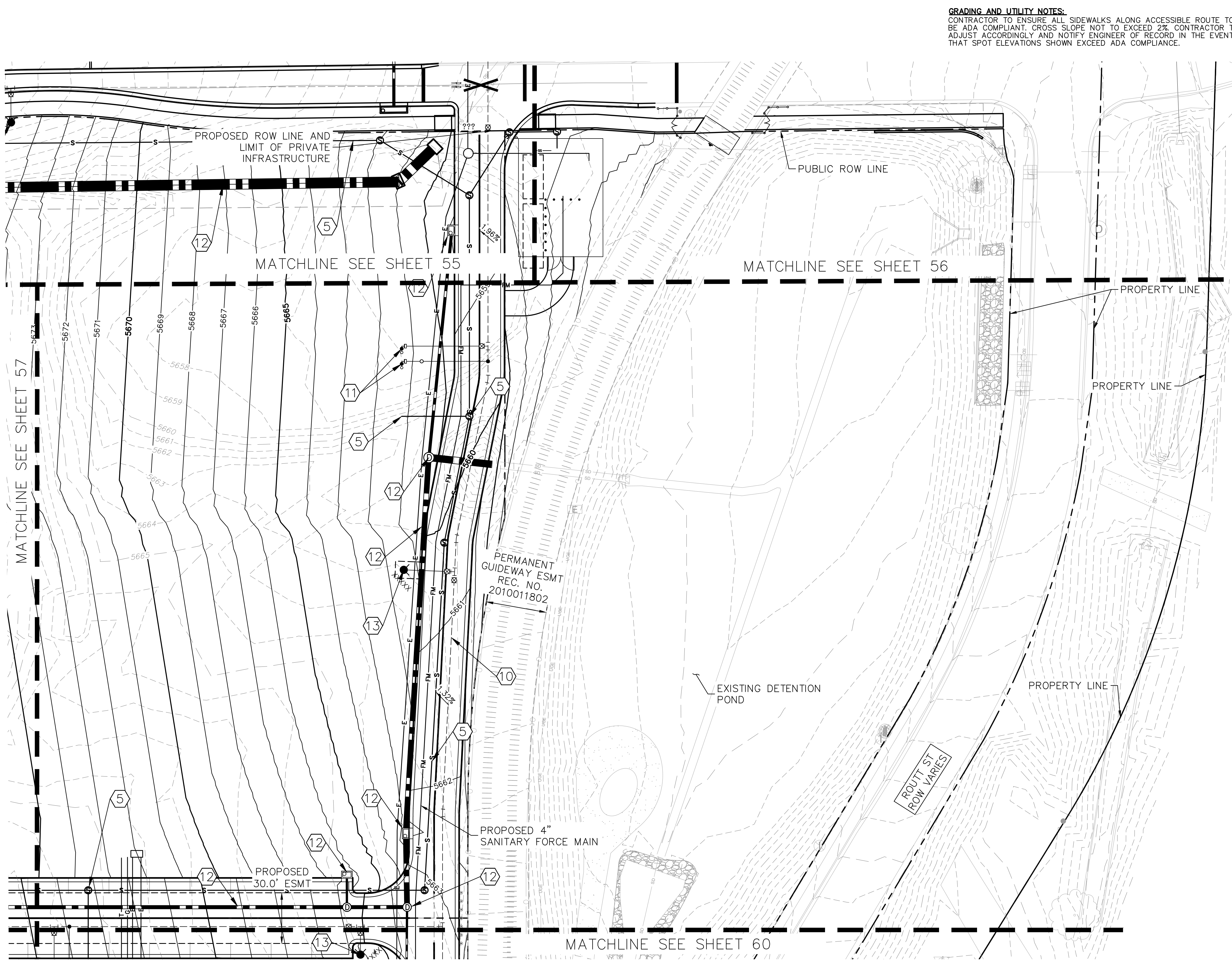
REVIEWED BY: _____

PROJECT NO.
 096412006

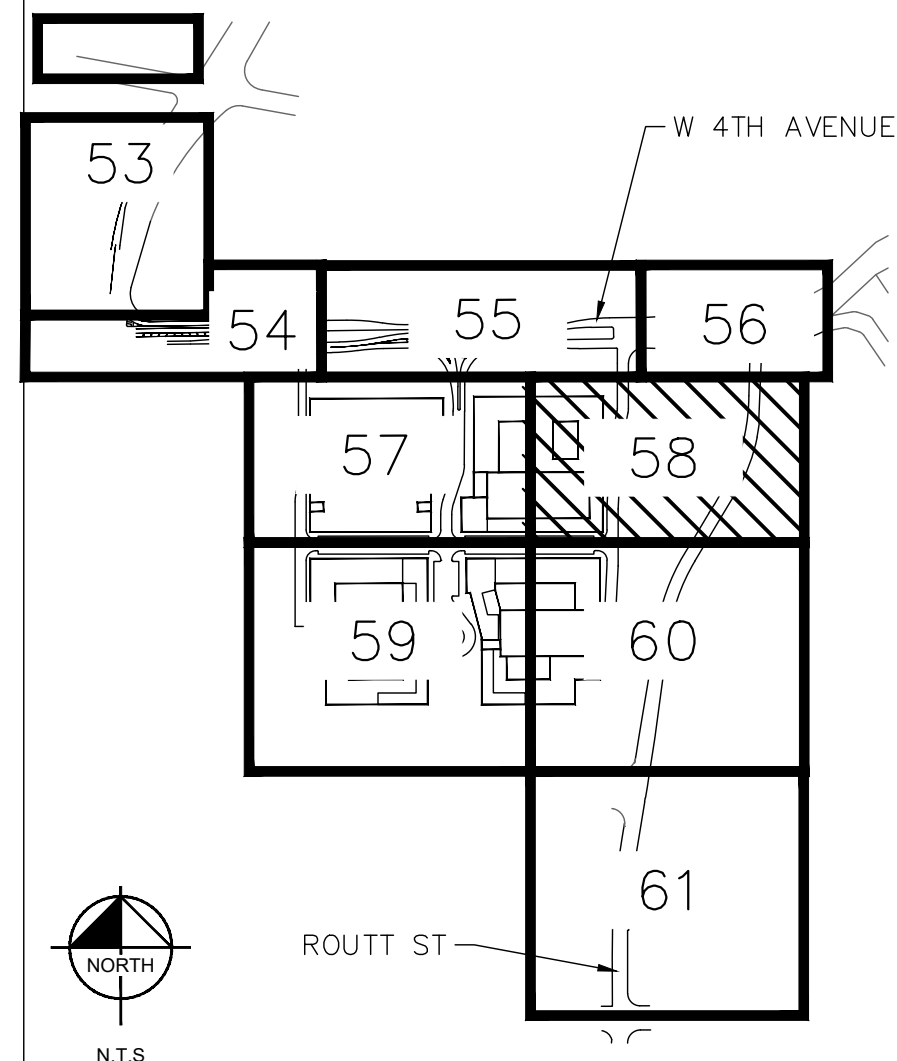
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SITE ADDRESS: _____
 PLANNING CASE NO. ZP24-0005

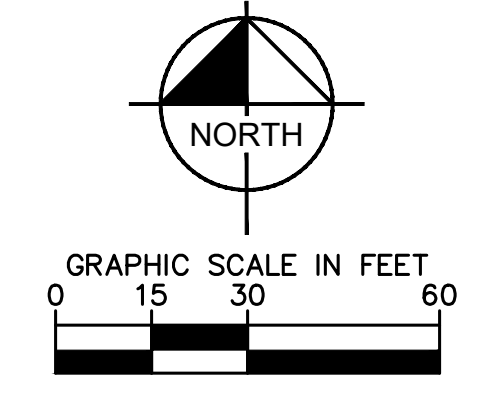
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GRADING AND UTILITY NOTES:
 CONTRACTOR TO ENSURE ALL SIDEWALKS ALONG ACCESSIBLE ROUTE TO BE ADA COMPLIANT. CROSS SLOPE NOT TO EXCEED 2%. CONTRACTOR TO ADJUST ACCORDINGLY AND NOTIFY ENGINEER OF RECORD IN THE EVENT THAT SPOT ELEVATIONS SHOWN EXCEED ADA COMPLIANCE.



- LEGEND:**
- — — — — PROPERTY LINE
 - 50 — — — — PROPOSED MAJOR CONTOURS
 - 49 — — — — PROPOSED MINOR CONTOURS
 - 50 — — — — EXISTING MAJOR CONTOURS
 - 49 — — — — EXISTING MINOR CONTOURS
 - — — — — PROPOSED STORM PIPES
 - PROPOSED MANHOLE
 - PROPOSED STORM INLET
 - S — — — — PROPOSED SANITARY SEWER LINE
 - W — — — — PROPOSED WATER LINE
 - SD — — — — EXISTING STORM LINE
 - G — — — — EXISTING GAS LINE
 - W — — — — EXISTING WATER LINE
 - S — — — — EXISTING SANITARY SEWER LINE
 - UGE — — — — EXISTING ELECTRIC LINE
 - — — — — EXISTING FENCE LINE
- ABBREVIATIONS**
- | | |
|-------------------|----------------------------|
| FG FINISH GRADE | FFE FINISH FLOOR ELEVATION |
| FL FLOWLINE | SW SIDEWALK |
| ME MATCH EXISTING | HP HIGH POINT |
| LP LOW POINT | EG EXISTING GRADE |
- SITE KEYNOTES**
- ① EXISTING FIRE HYDRANT
 - ② EXISTING WATER MAIN
 - ③ EXISTING UNDERGROUND ELECTRIC LINE
 - ④ EXISTING STORM SEWER MAIN
 - ⑤ PROPOSED SANITARY SEWER INFRASTRUCTURE
 - ⑧ EXISTING STORM INLET
 - ⑨ EXISTING COMMUNICATIONS LINE
 - ⑩ PROPOSED WATER MAIN
 - ⑪ PROPOSED WATER STUB
 - ⑫ PROPOSED STORM INFRASTRUCTURE
 - ⑬ PROPOSED FIRE HYDRANT



**CITY OF LAKEWOOD
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NO.	REVISION	BY	DATE	APPR

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 GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
 DRAWN BY: MMR
 CHECKED BY: KEW
 DATE: 05/31/2024

**THE BEND - INFRASTRUCTURE
 LAKEWOOD, COLORADO
 GRADING AND UTILITY PLAN (6 OF 9)**

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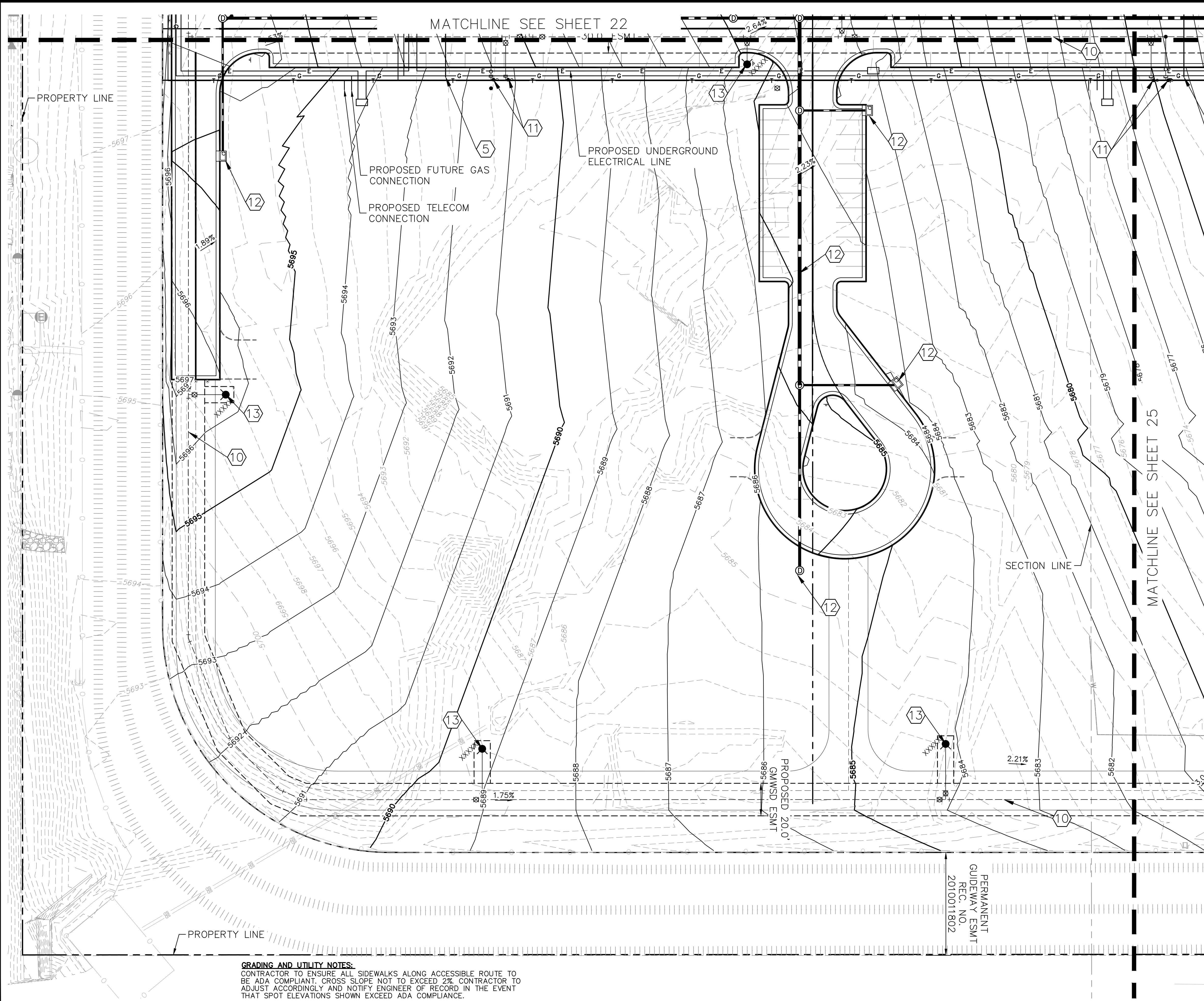
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PROJECT NO.
 096412006

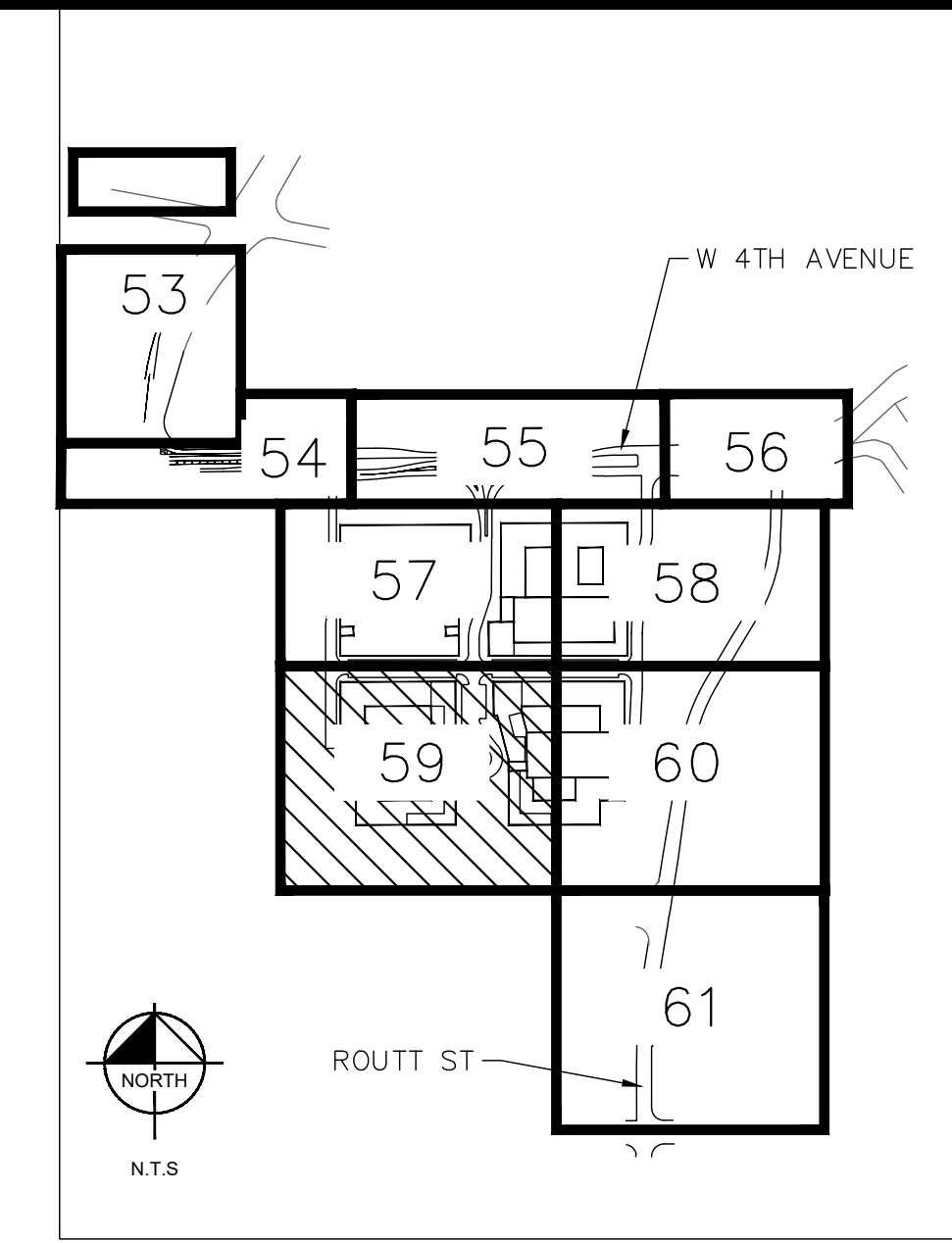
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SITE ADDRESS: _____
 PLANNING CASE NO. ZP24-0005

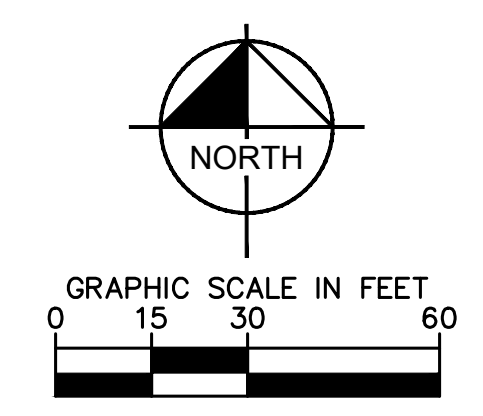
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- LEGEND:**
- PROPERTY LINE
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 - 49 --- PROPOSED MINOR CONTOURS
 - 50 --- EXISTING MAJOR CONTOURS
 - 49 --- EXISTING MINOR CONTOURS
 - PROPOSED STORM PIPES
 - o --- PROPOSED MANHOLE
 - --- PROPOSED STORM INLET
 - S --- PROPOSED SANITARY SEWER LINE
 - W --- PROPOSED WATER LINE
 - SD --- EXISTING STORM LINE
 - G --- EXISTING GAS LINE
 - W --- EXISTING WATER LINE
 - S --- EXISTING SANITARY SEWER LINE
 - UGE --- EXISTING ELECTRIC LINE
 - o --- EXISTING FENCE LINE
- ABBREVIATIONS**
- | | | | |
|----|----------------|-----|------------------------|
| FG | FINISH GRADE | FFE | FINISH FLOOR ELEVATION |
| FL | FLOWLINE | SW | SIDEWALK |
| ME | MATCH EXISTING | HP | HIGH POINT |
| LP | LOW POINT | EG | EXISTING GRADE |
- SITE KEYNOTES**
- ① EXISTING FIRE HYDRANT
 - ② EXISTING WATER MAIN
 - ③ EXISTING UNDERGROUND ELECTRIC LINE
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 - ⑪ PROPOSED WATER STUB
 - ⑫ PROPOSED STORM INFRASTRUCTURE
 - ⑬ PROPOSED FIRE HYDRANT



CITY OF LAKEWOOD
 PLANNING DEPARTMENT

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REVIEWED BY: _____ APPROVED BY: _____

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 DRAWN BY: MMR
 CHECKED BY: KEW
 DATE: 05/31/2024

THE BEND - INFRASTRUCTURE
 LAKEWOOD, COLORADO
 GRADING AND UTILITY PLAN (7 OF 9)

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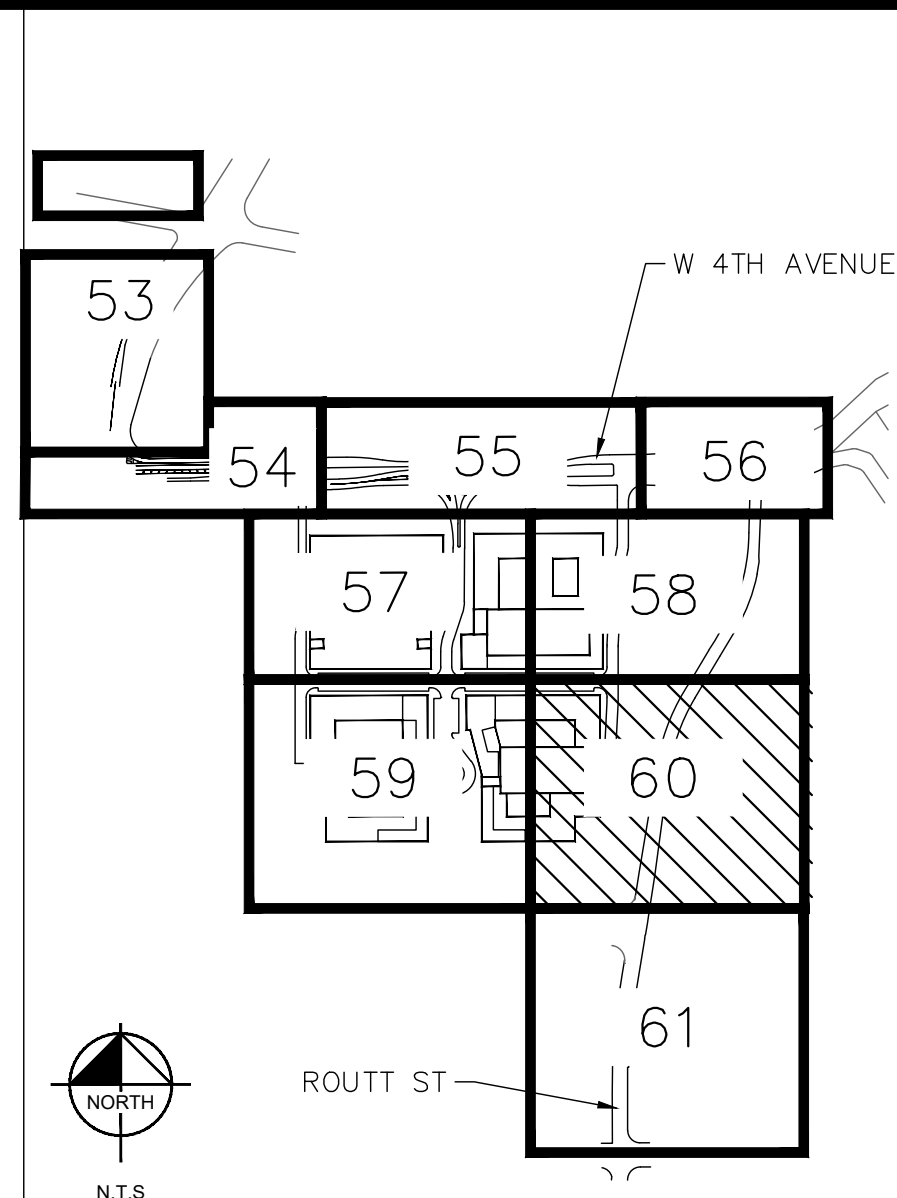
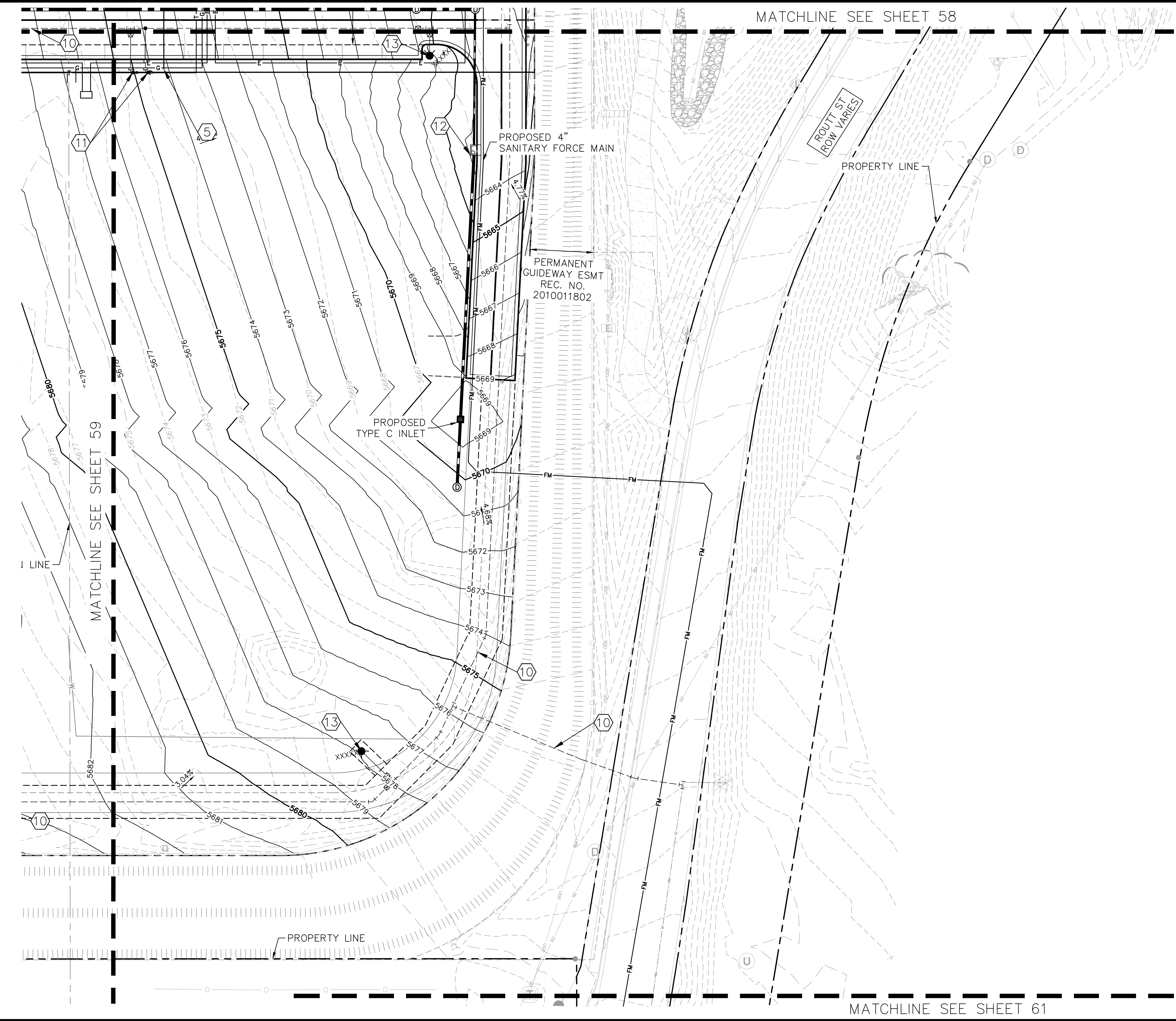
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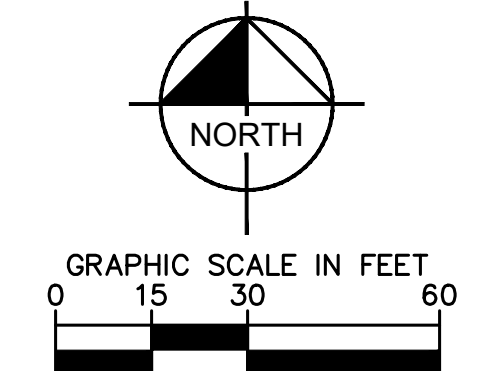
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 - ⊕ --- PROPOSED STORM INLET
 - S --- PROPOSED SANITARY SEWER LINE
 - W --- PROPOSED WATER LINE
 - SD --- EXISTING STORM LINE
 - G --- EXISTING GAS LINE
 - W --- EXISTING WATER LINE
 - S --- EXISTING SANITARY SEWER LINE
 - UGE --- EXISTING ELECTRIC LINE
 - --- EXISTING FENCE LINE
- ABBREVIATIONS**
- | | | | |
|----|----------------|-----|------------------------|
| FG | FINISH GRADE | FFE | FINISH FLOOR ELEVATION |
| FL | FLOWLINE | SW | SIDEWALK |
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| LP | LOW POINT | EG | EXISTING GRADE |
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- SITE KEYNOTES**
- ① EXISTING FIRE HYDRANT
 - ② EXISTING WATER MAIN
 - ③ EXISTING UNDERGROUND ELECTRIC LINE
 - ④ EXISTING STORM SEWER MAIN
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 - ⑪ PROPOSED WATER STUB
 - ⑫ PROPOSED STORM INFRASTRUCTURE
 - ⑬ PROPOSED FIRE HYDRANT

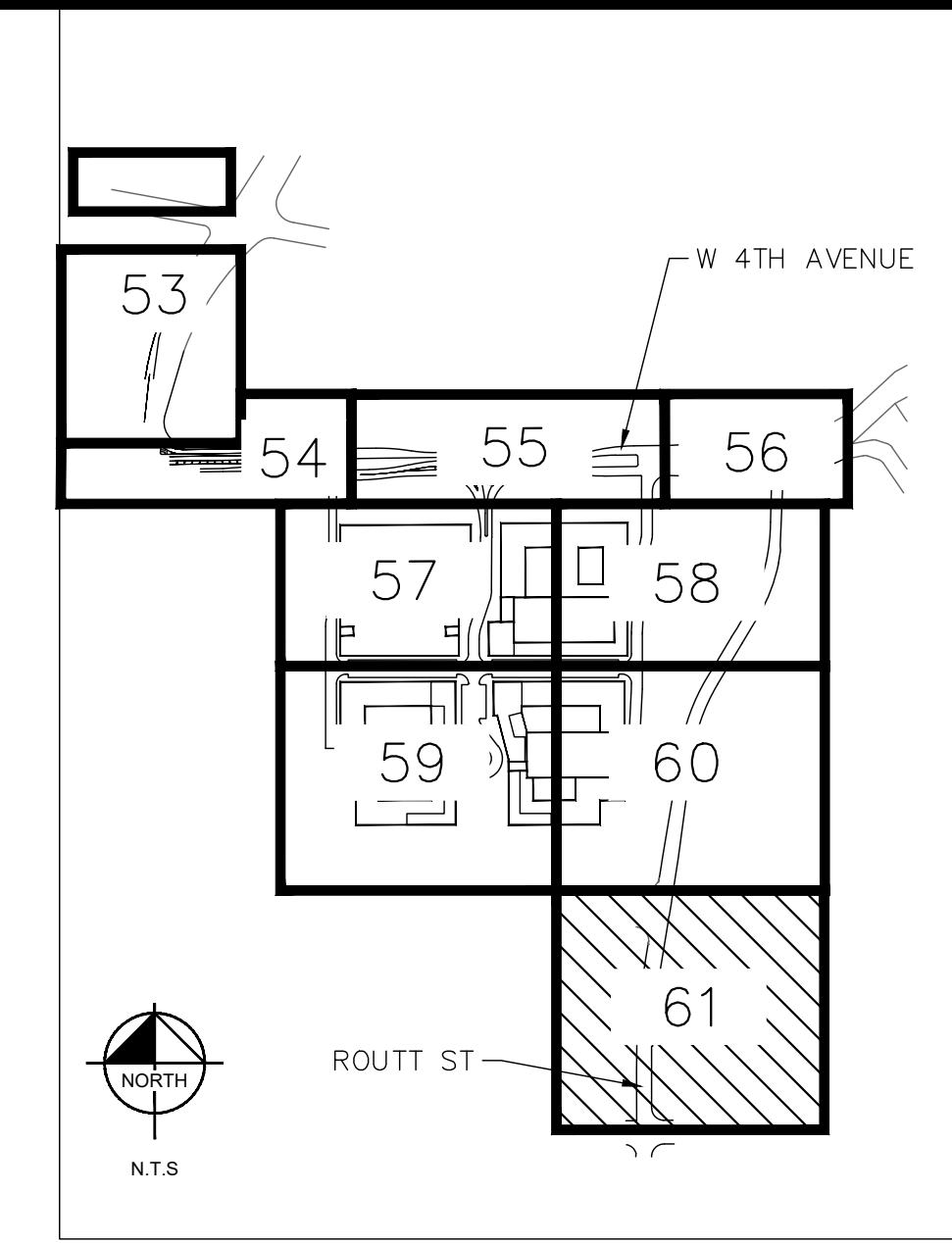
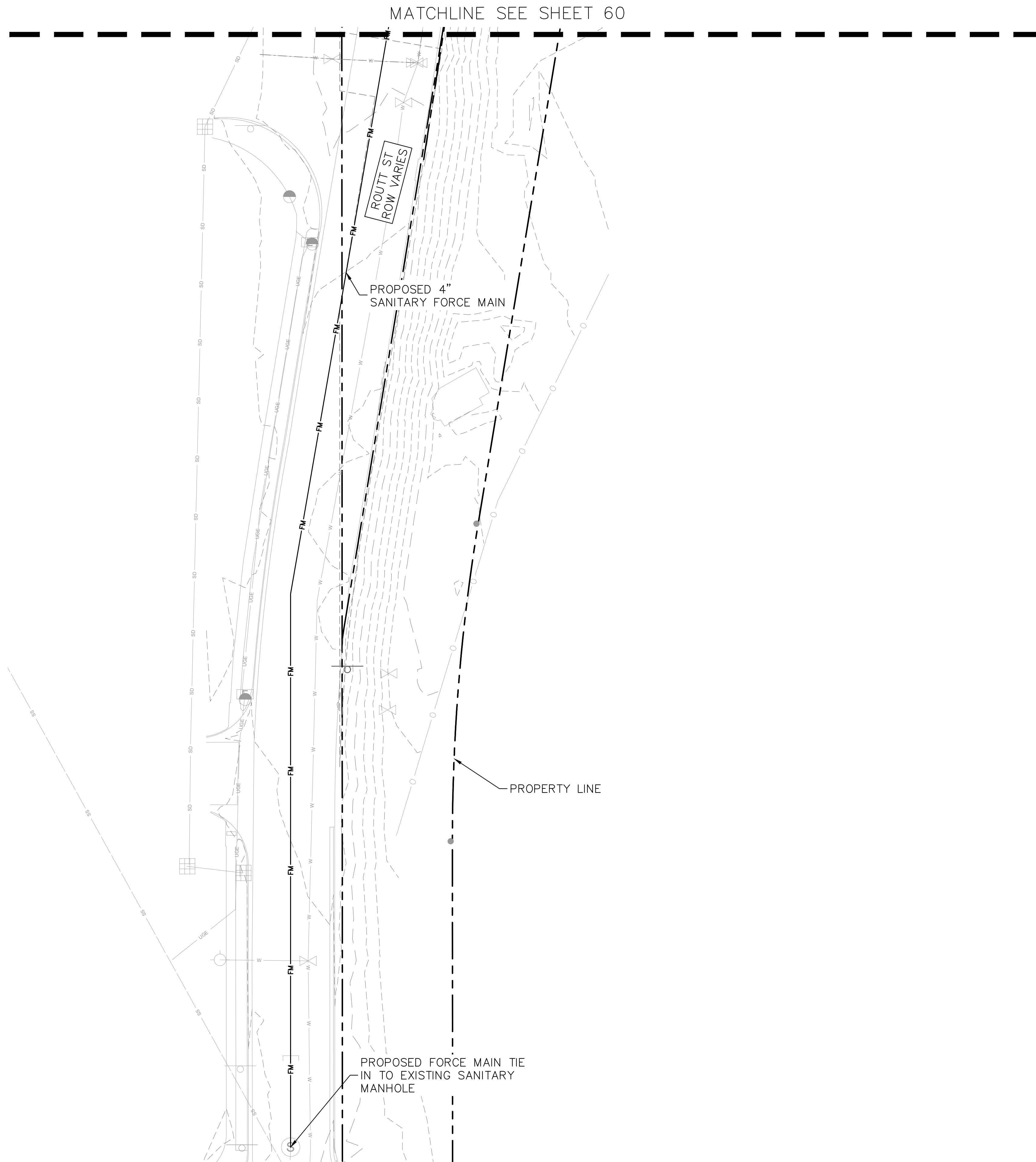


**CITY OF LAKEWOOD
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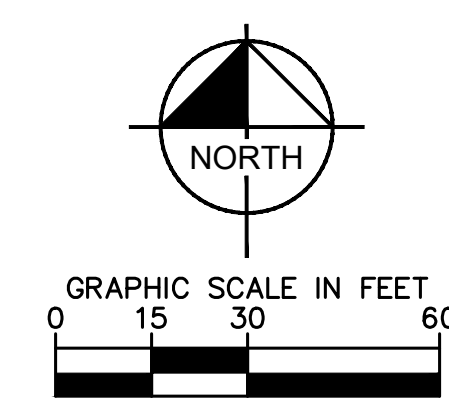
<h1 style="margin: 0;">Kimley»Horn</h1> <p style="font-size: 8px; margin: 0;">© 2024, KIMLEY-HORN AND ASSOCIATES, INC. 6200 SOUTH SYRACUSE WAY, SUITE 300 GREENWOOD VILLAGE, CO 80111 (303) 228-2300</p>	<p style="font-size: 10px; margin: 0;">DESIGNED BY: MMR DRAWN BY: MMR CHECKED BY: KEW DATE: 05/31/2024</p>
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 PLANNING CASE NO. ZP24-0005

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 - ⊕ PROPOSED MANHOLE
 - ⊕ PROPOSED STORM INLET
 - S — PROPOSED SANITARY SEWER LINE
 - W — PROPOSED WATER LINE
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**CITY OF LAKEWOOD
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NO.	REVISION	BY	DATE	APPR

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DESIGNED BY: MMR
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 CHECKED BY: KEW
 DATE: 05/31/2024

**THE BEND - INFRASTRUCTURE
 LAKEWOOD, COLORADO
 GRADING AND UTILITY PLAN (9 OF 9)**

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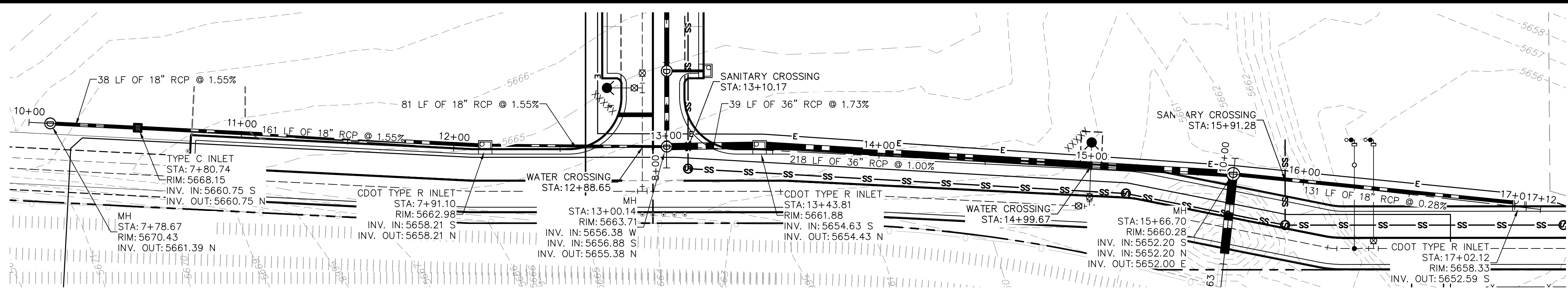
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PROJECT NO.
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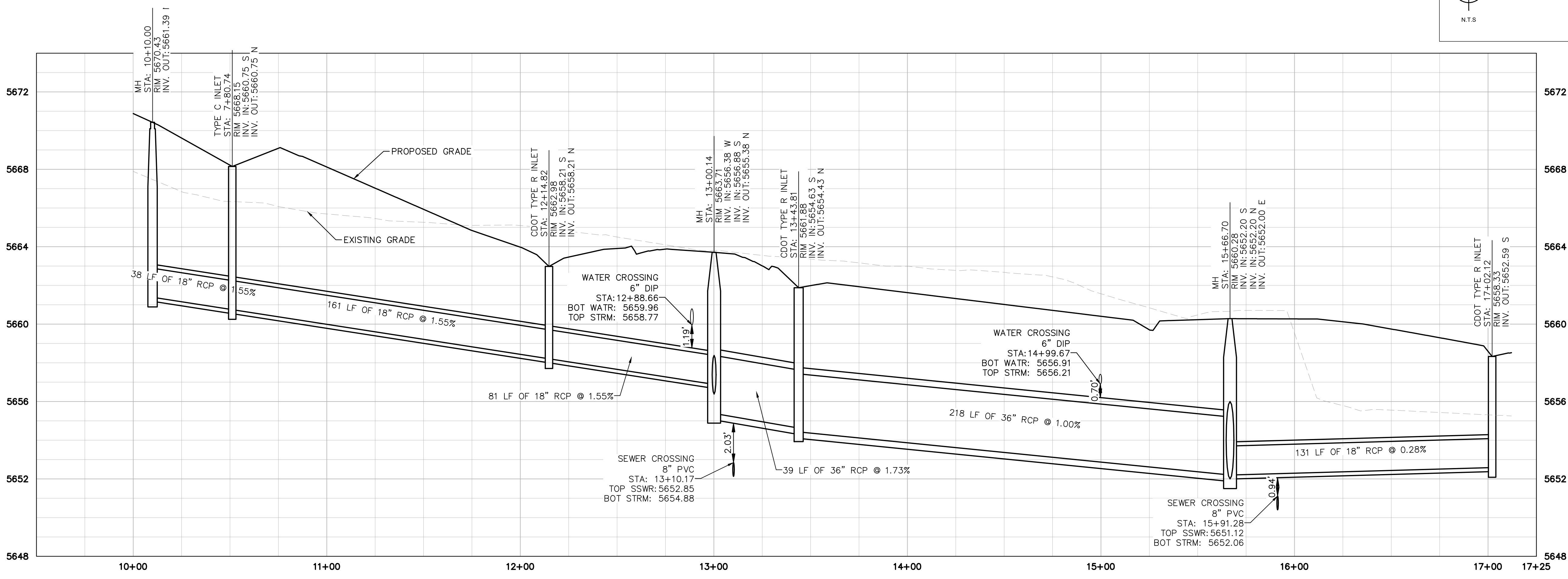
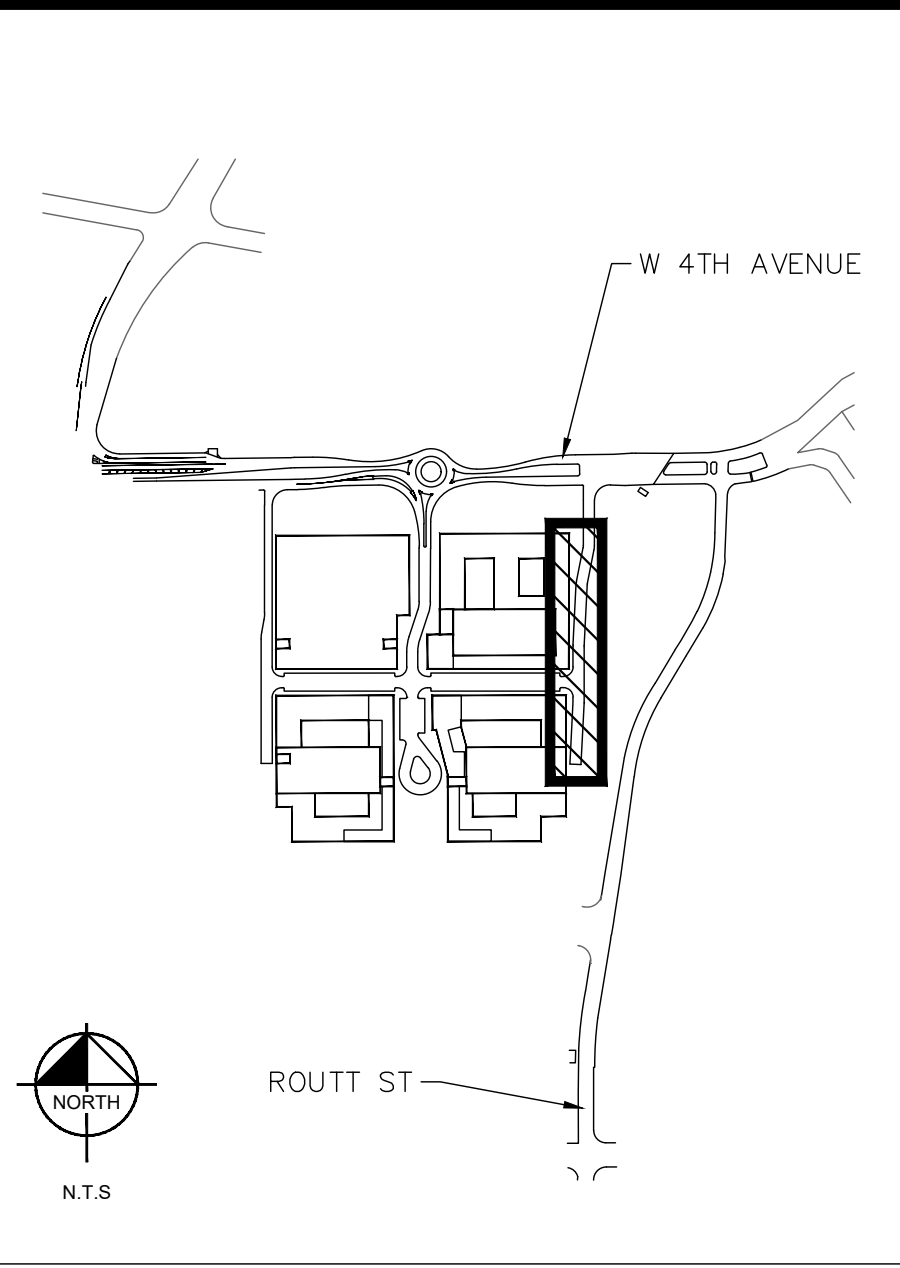
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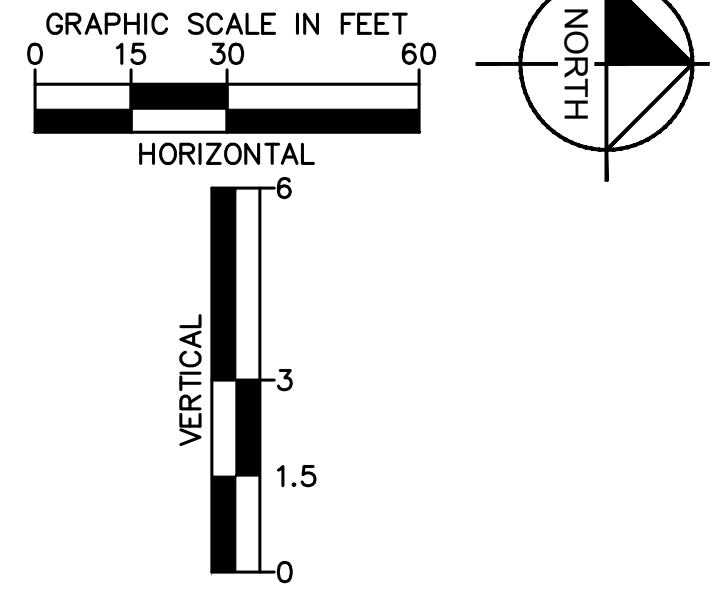


STRM A PLAN



STRM A PROFILE

LEGEND	
	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



CITY OF LAKEWOOD
PLANNING DEPARTMENT

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REVIEWED BY: _____ APPROVED BY: _____

Kimley»Horn

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GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
DRAWN BY: MMR
CHECKED BY: KEW
DATE: 05/31/2024

THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
STRM A PLAN & PROFILE

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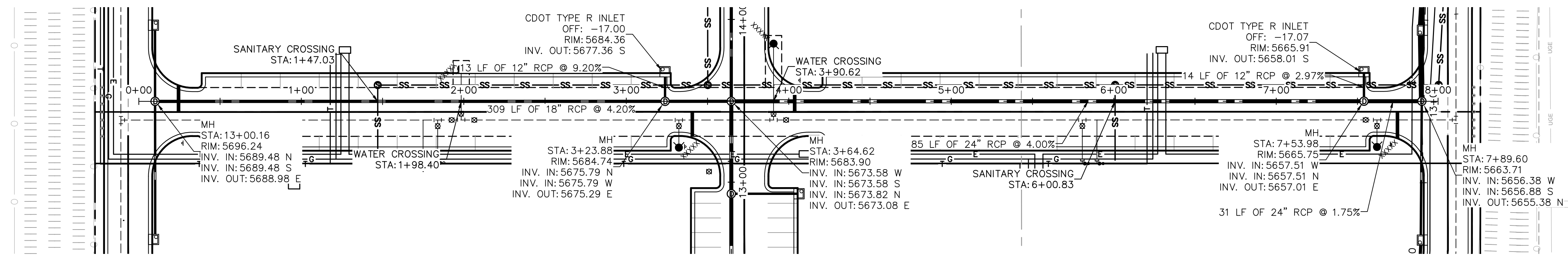
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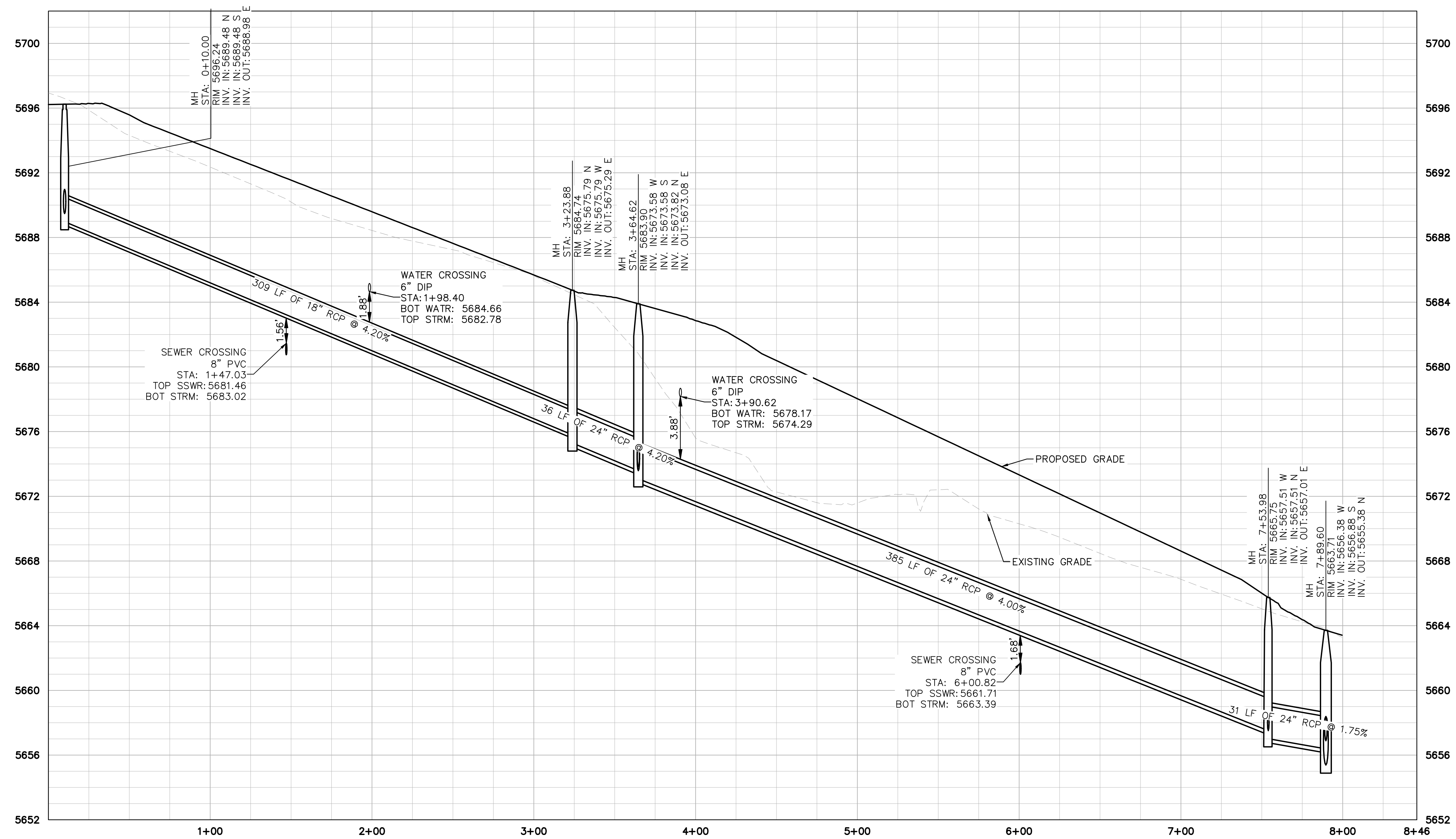
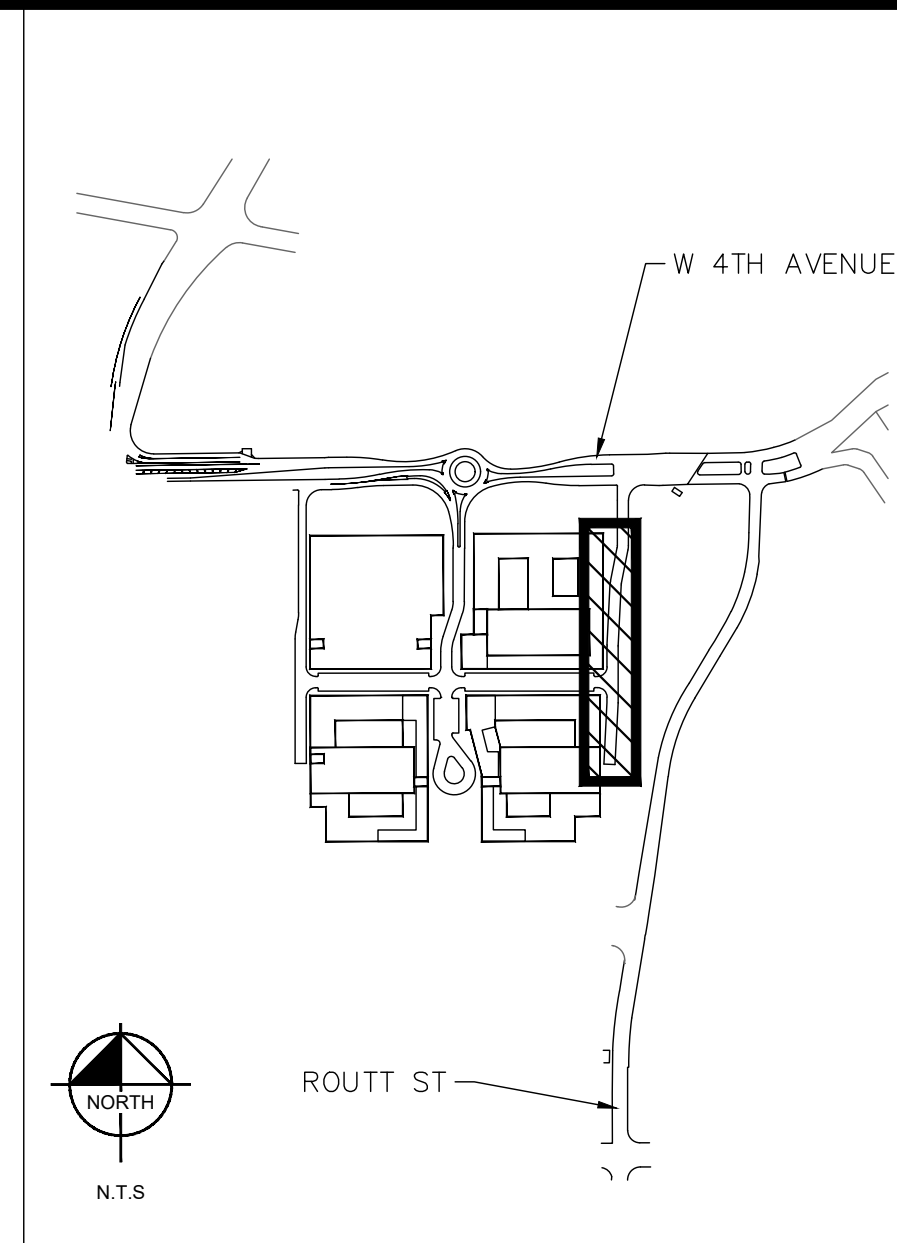
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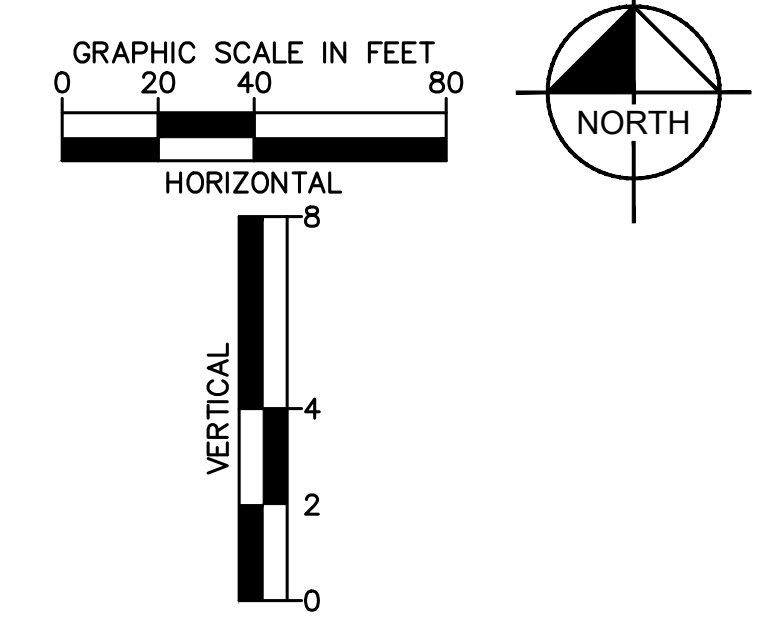
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STRM B PLAN



STRM B PROFILE



LEGEND

	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE

CITY OF LAKEWOOD
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SHEET
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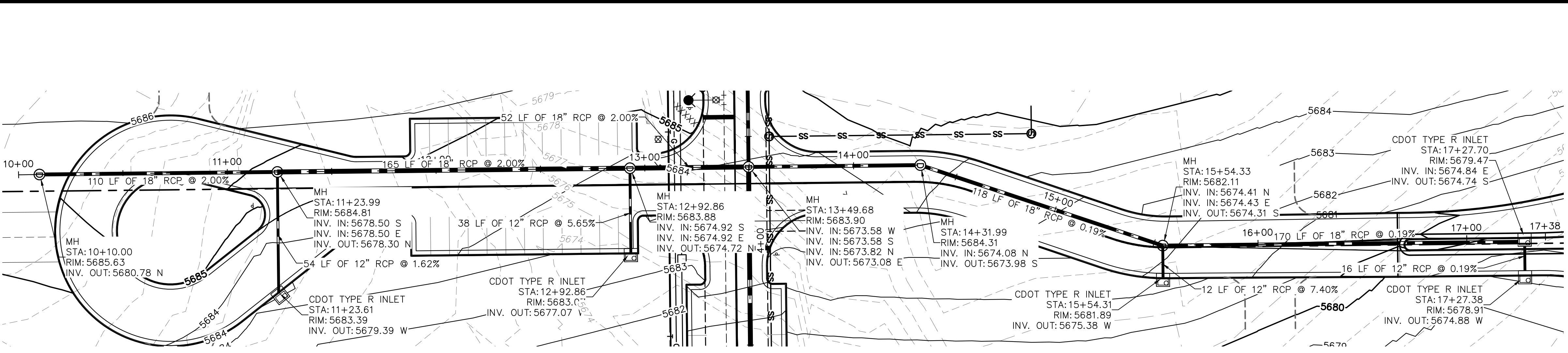
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THE BEND - INFRASTRUCTURE
 LAKEWOOD, COLORADO
 STRM B PLAN & PROFILE

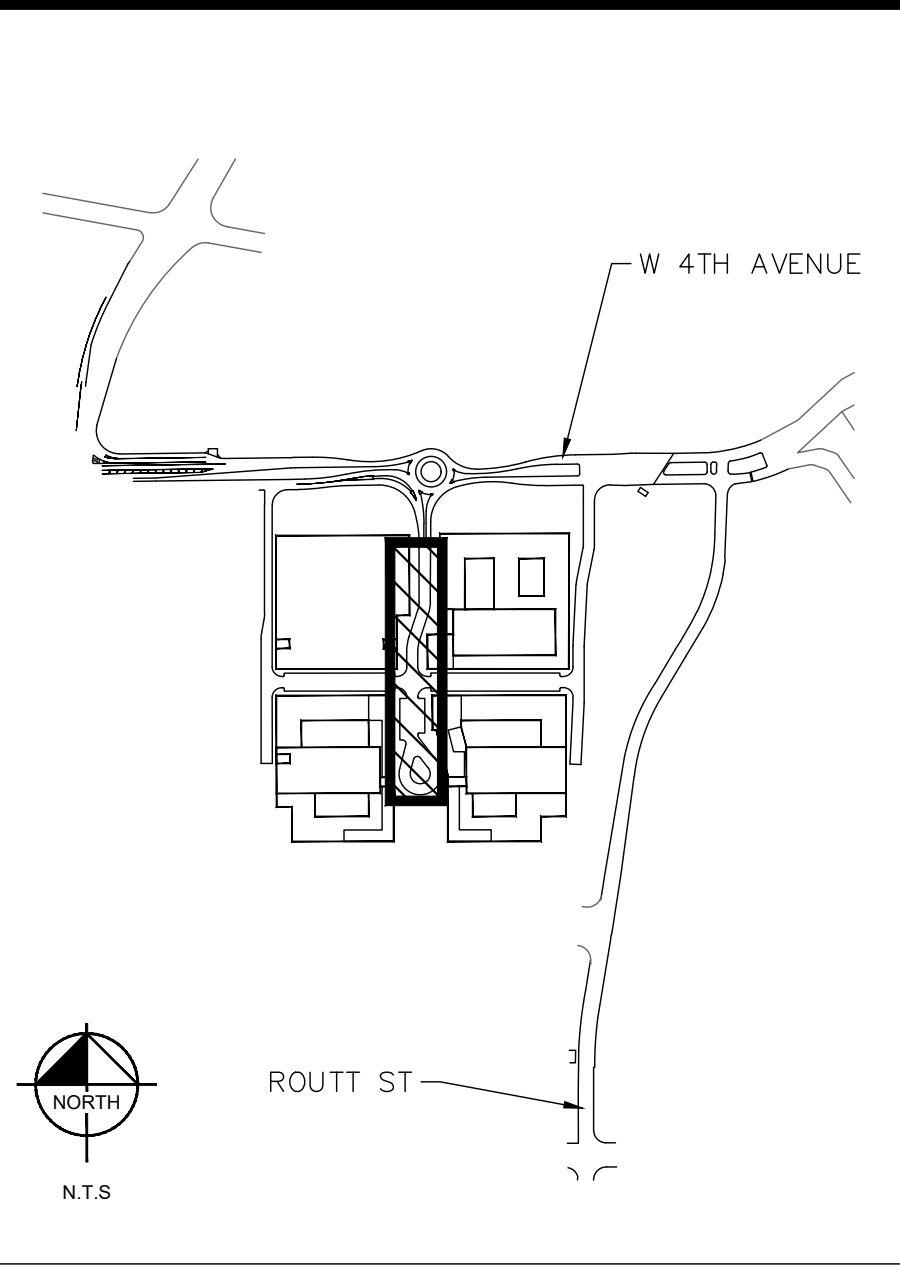
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STRM C PLAN



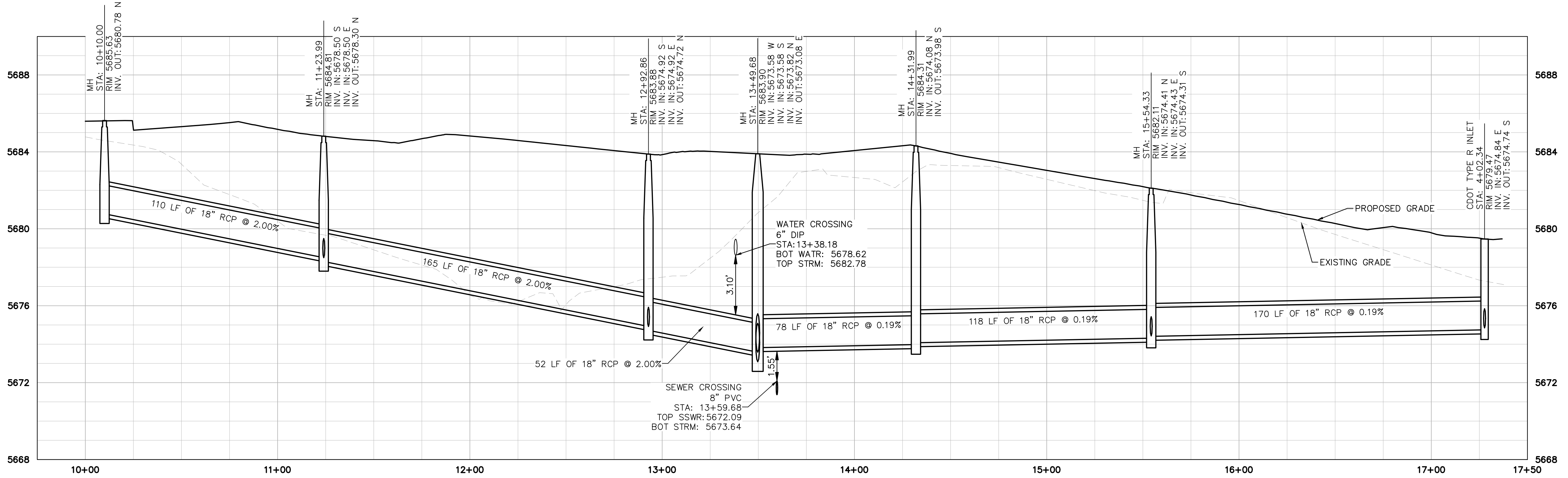
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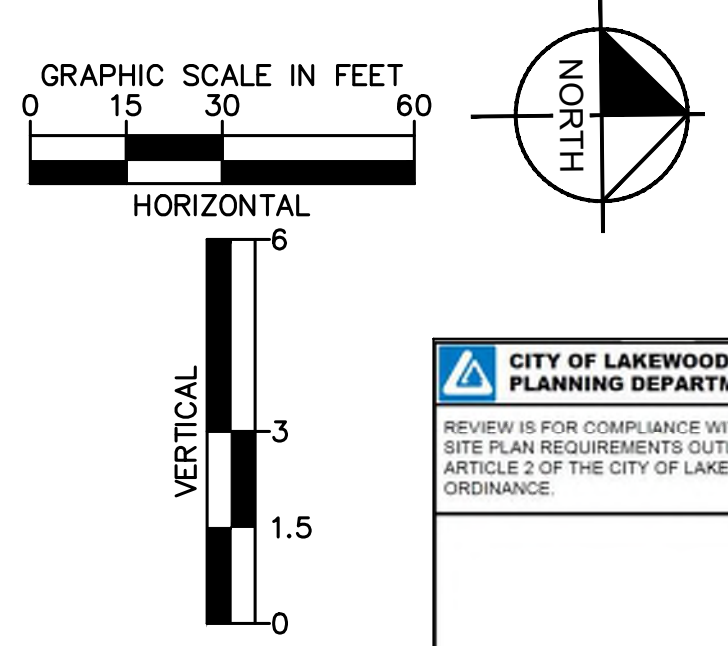
THE BEND - INFRASTRUCTURE
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STRM C PROFILE

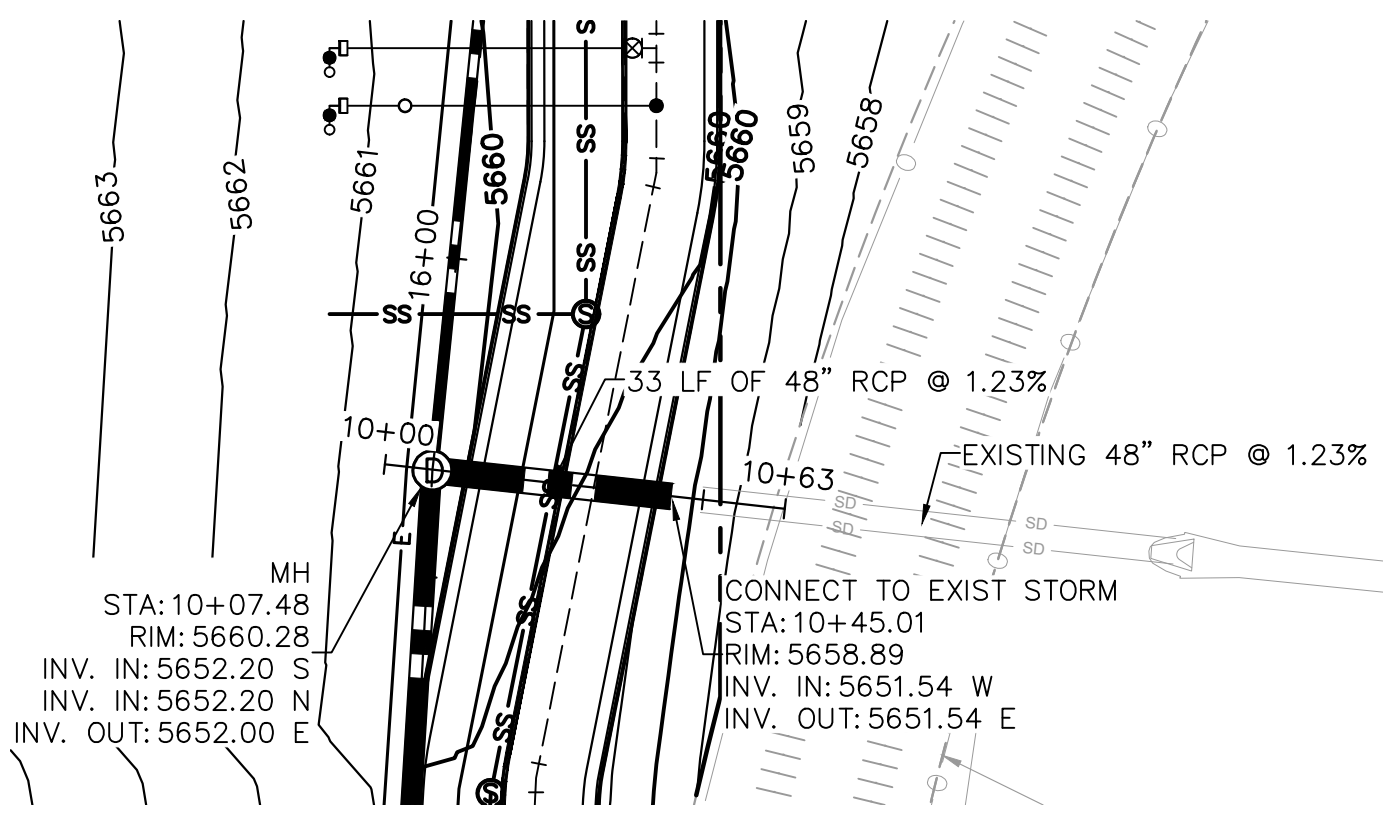
LEGEND	
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	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
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	EX. FIRE HYDRANT
	EX. WATER VALVE



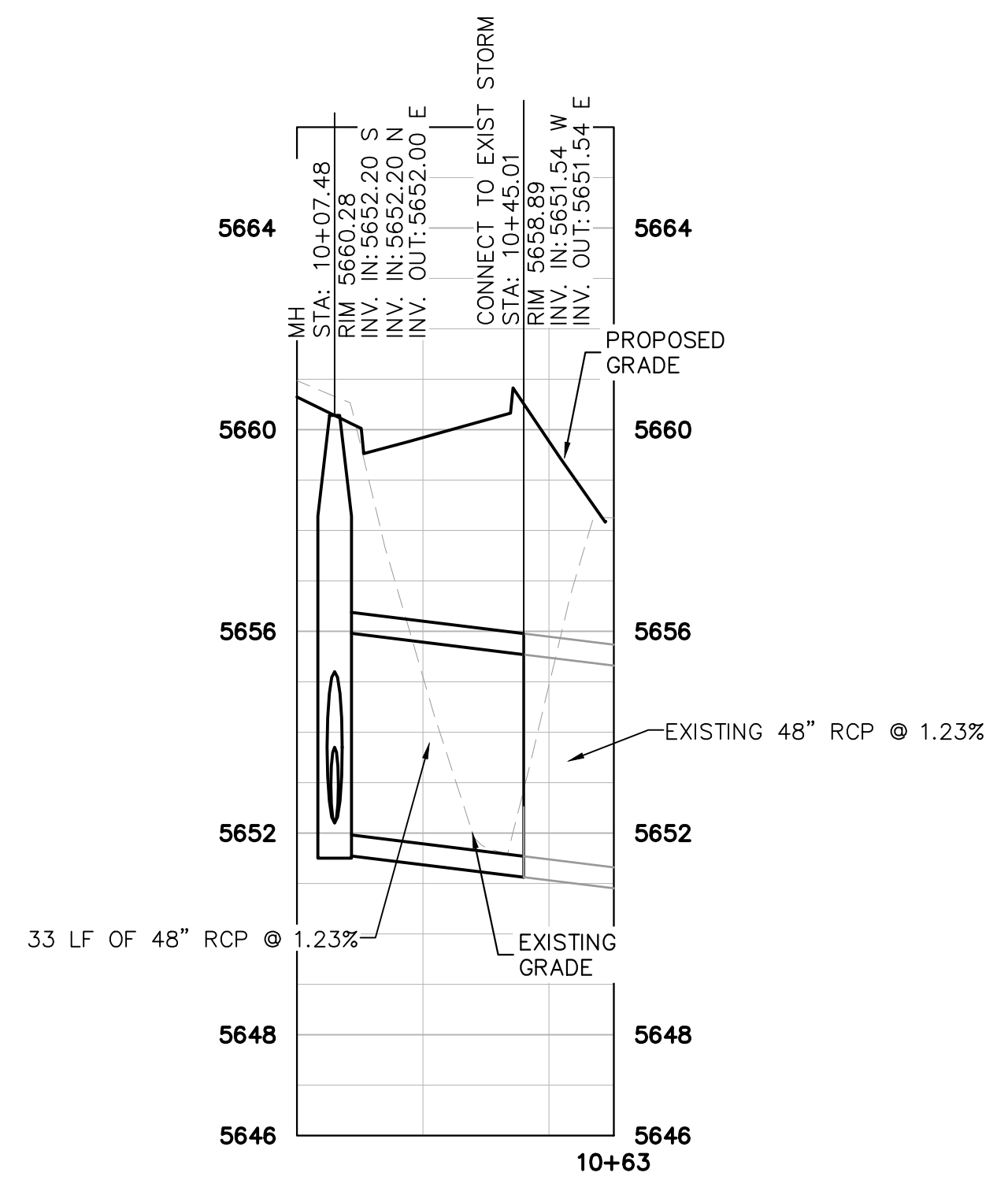
CITY OF LAKEWOOD
 PLANNING DEPARTMENT
 REVIEW IS FOR COMPLIANCE WITH THE MAJOR
 SITE PLAN REQUIREMENTS OUTLINED IN
 ARTICLE 2 OF THE CITY OF LAKEWOOD ZONING
 ORDINANCE.
 REVIEWED BY: _____ APPROVED BY: _____

SITE ADDRESS: _____
 PLANNING CASE NO. ZP24-0005

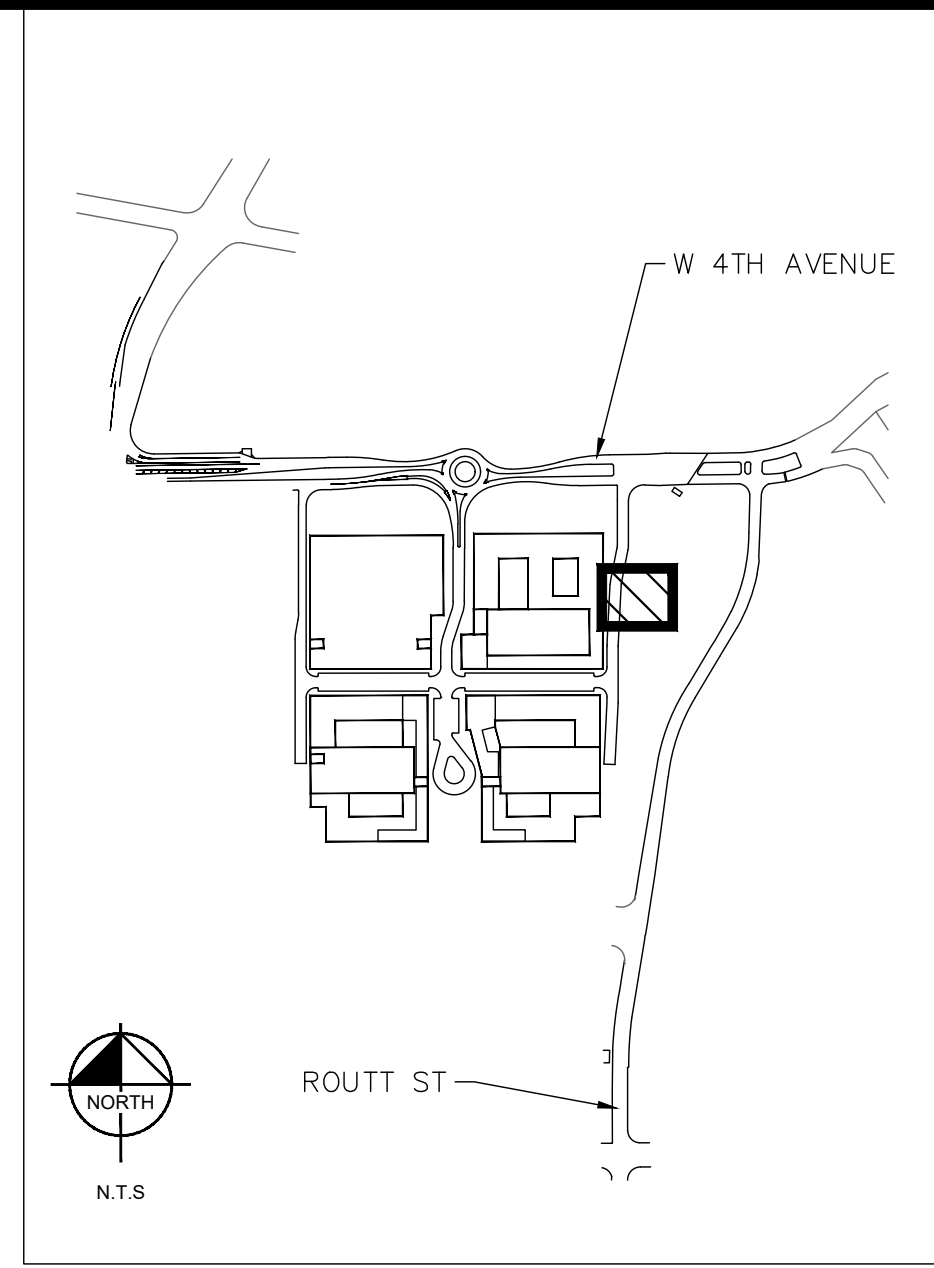
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STRM OUTFALL PLAN

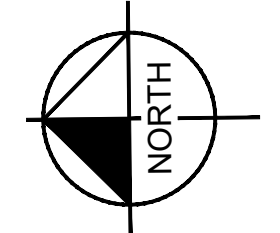
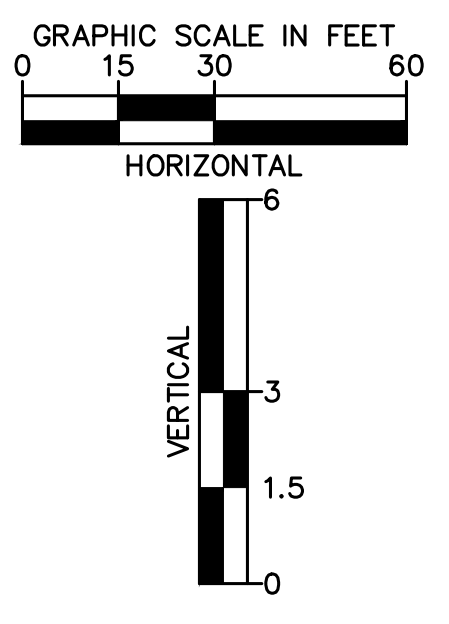


STRM OUTFALL PROFILE



LEGEND

	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



CITY OF LAKEWOOD
PLANNING DEPARTMENT
REVIEW IS FOR COMPLIANCE WITH THE MAJOR
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ORDINANCE.

REVIEWED BY: _____ APPROVED BY: _____

NO.	REVISION	BY	DATE	APPR

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6200 SOUTH SYRACUSE WAY, SUITE 300
GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
DRAWN BY: MMR
CHECKED BY: KEW
DATE: 05/31/2024

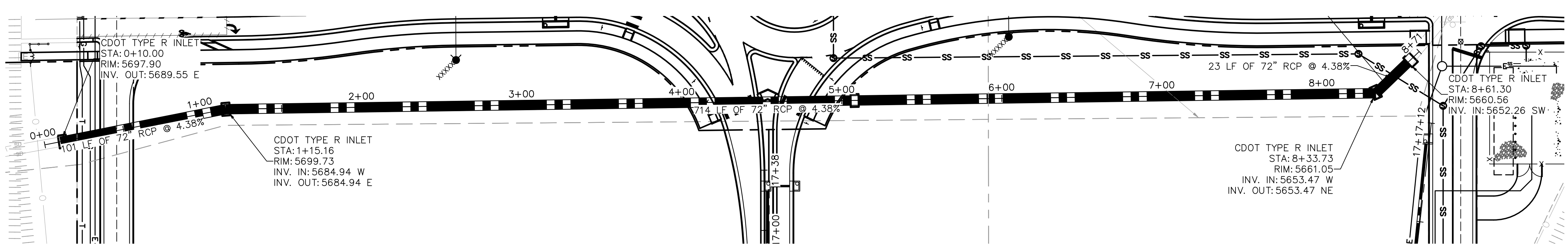
THE BEND - INFRASTRUCTURE
LAKEWOOD, COLORADO
STRM OUTFALL PLAN & PROFILE

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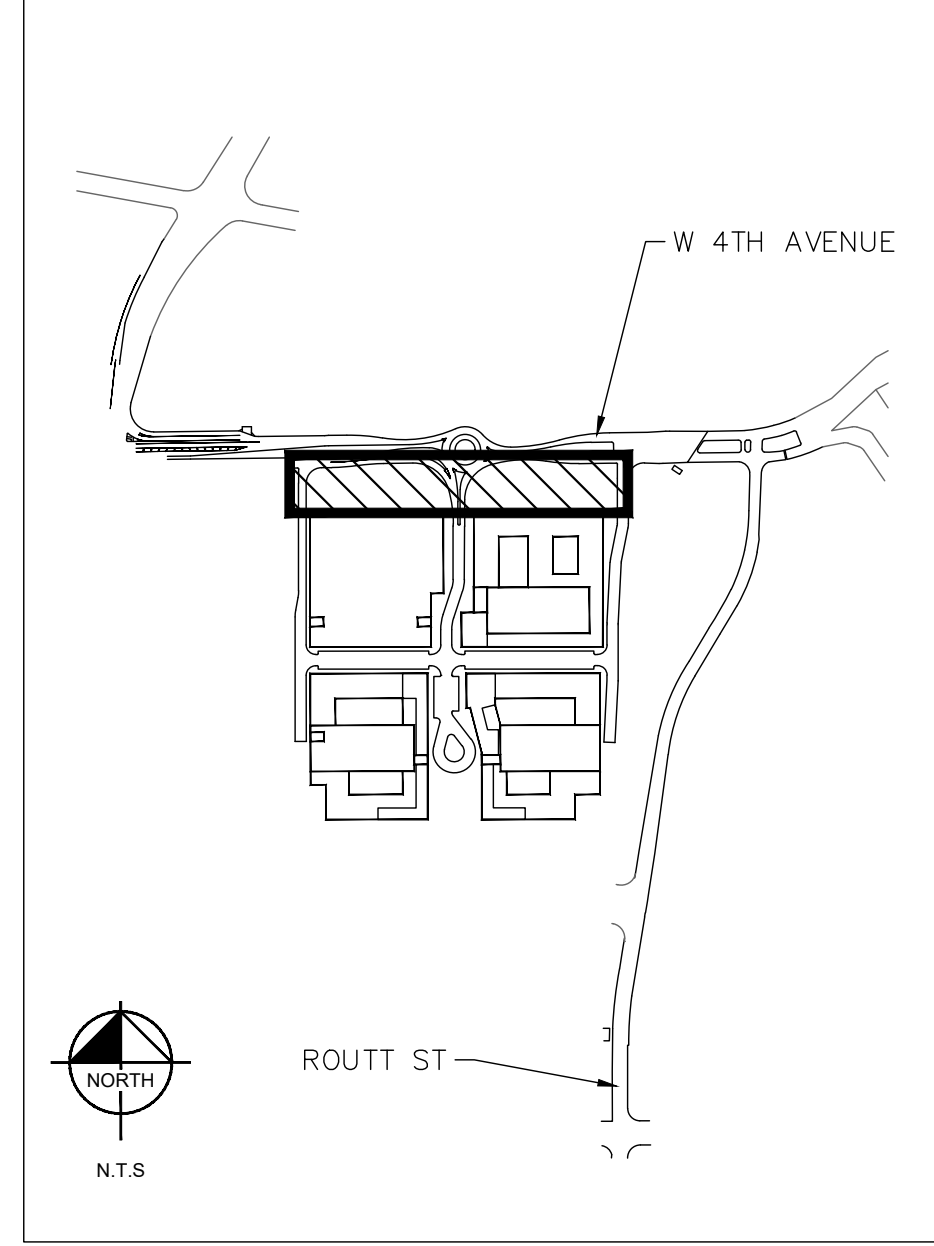
PROJECT NO.
096412006
SHEET
65

SITE ADDRESS: _____
PLANNING CASE NO. ZP24-0005

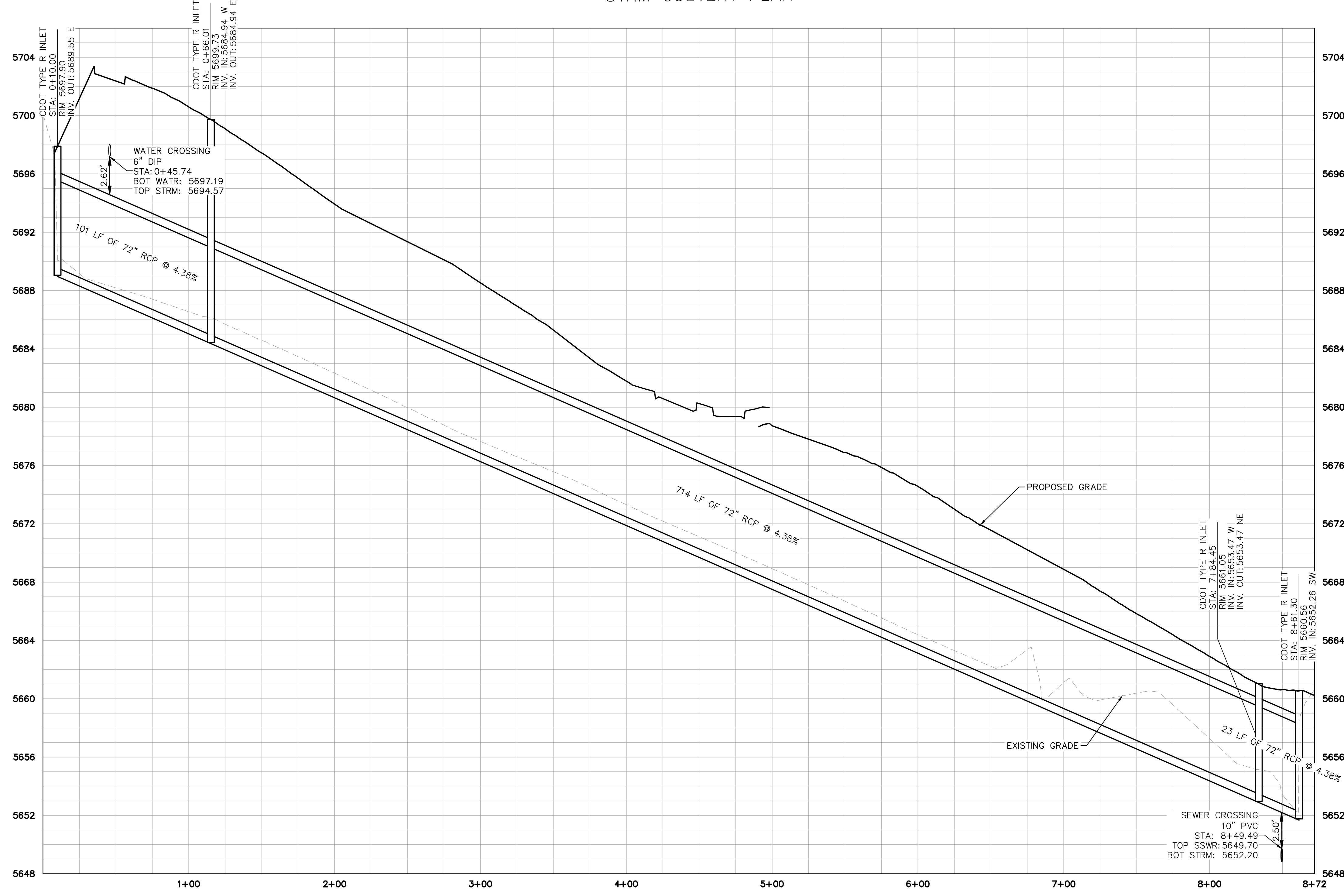
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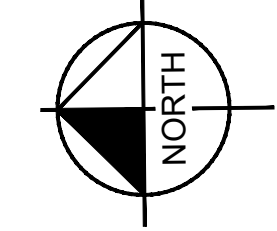
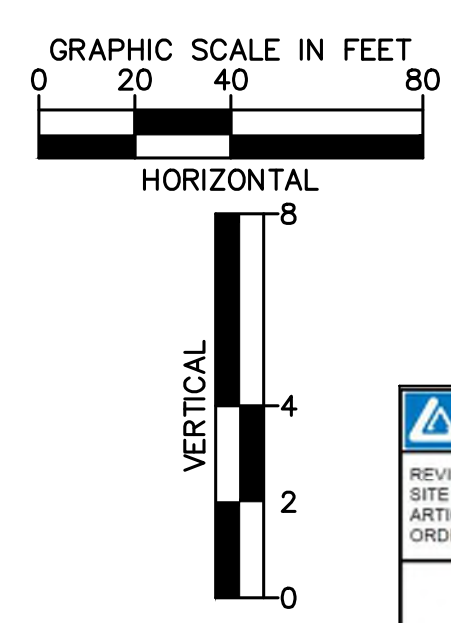
STRM CULVERT PLAN



- LEGEND**
- ZONE LOT LINE
 - EX. ZONE LOT LINE
 - EASEMENT LINE
 - PROP. WATER SERVICE LINE
 - PROP. ELECTRIC LINE
 - PROP. SANITARY LINE
 - PROP. STORM SEWER
 - PROP. STORM INLET
 - PROP. STORM MANHOLE
 - PROP. SANITARY MANHOLE
 - PROP. SITE LIGHT
 - PROP. FIRE HYDRANT
 - PROP. WATER METER
 - EX. ELECTRIC LINE
 - EX. FIBER OPTIC LINE
 - EX. SANITARY LINE
 - EX. STORM LINE
 - EX. WATER MAIN
 - EX. INLET
 - EX. STORM MANHOLE
 - EX. FIRE HYDRANT
 - EX. WATER VALVE



STRM CULVERT PROFILE



**CITY OF LAKEWOOD
PLANNING DEPARTMENT**

REVIEW IS FOR COMPLIANCE WITH THE MAJOR SITE PLAN REQUIREMENTS OUTLINED IN ARTICLE 2 OF THE CITY OF LAKEWOOD ZONING ORDINANCE.

NO.	REVISION	BY	DATE	APPR

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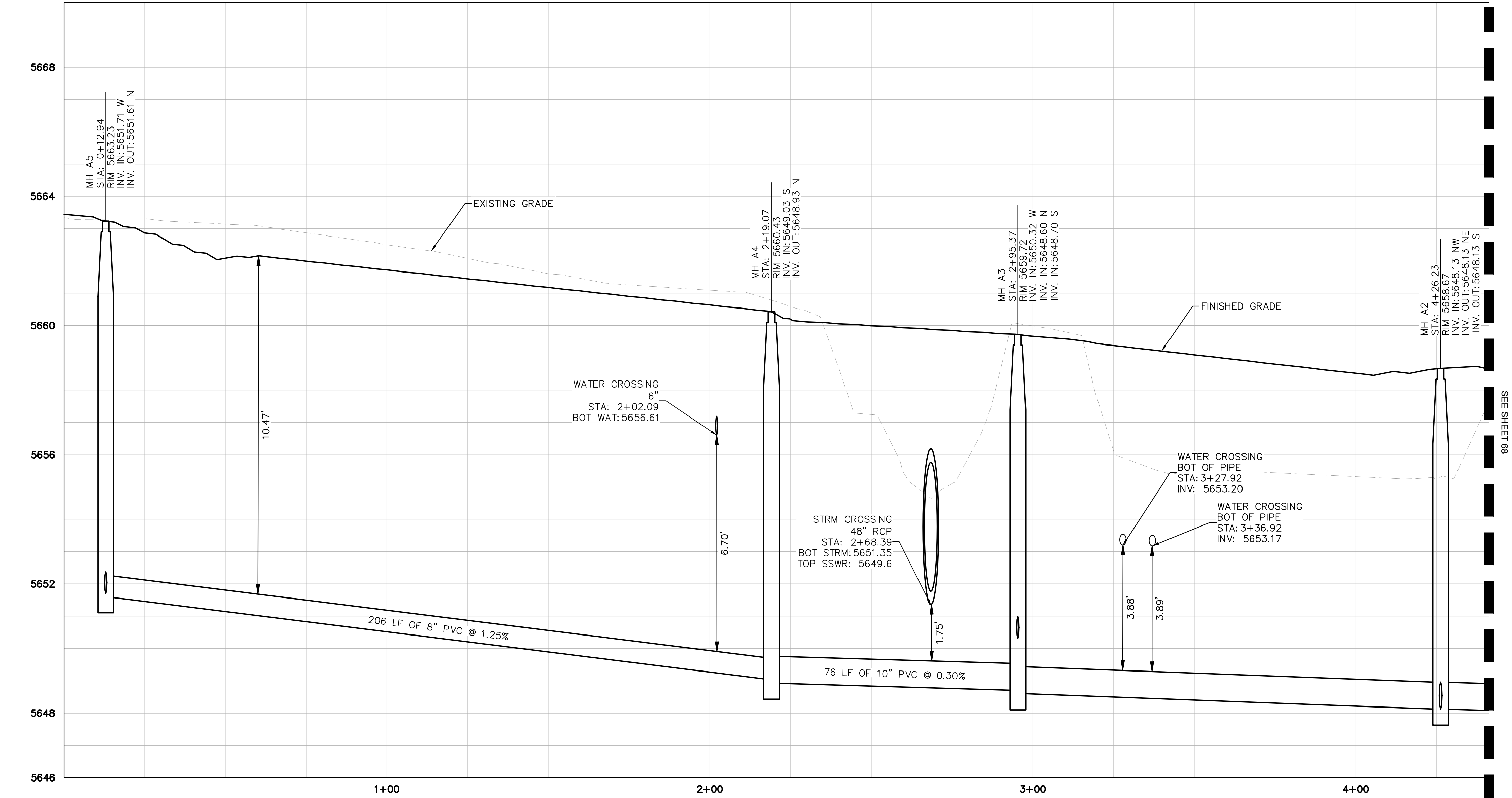
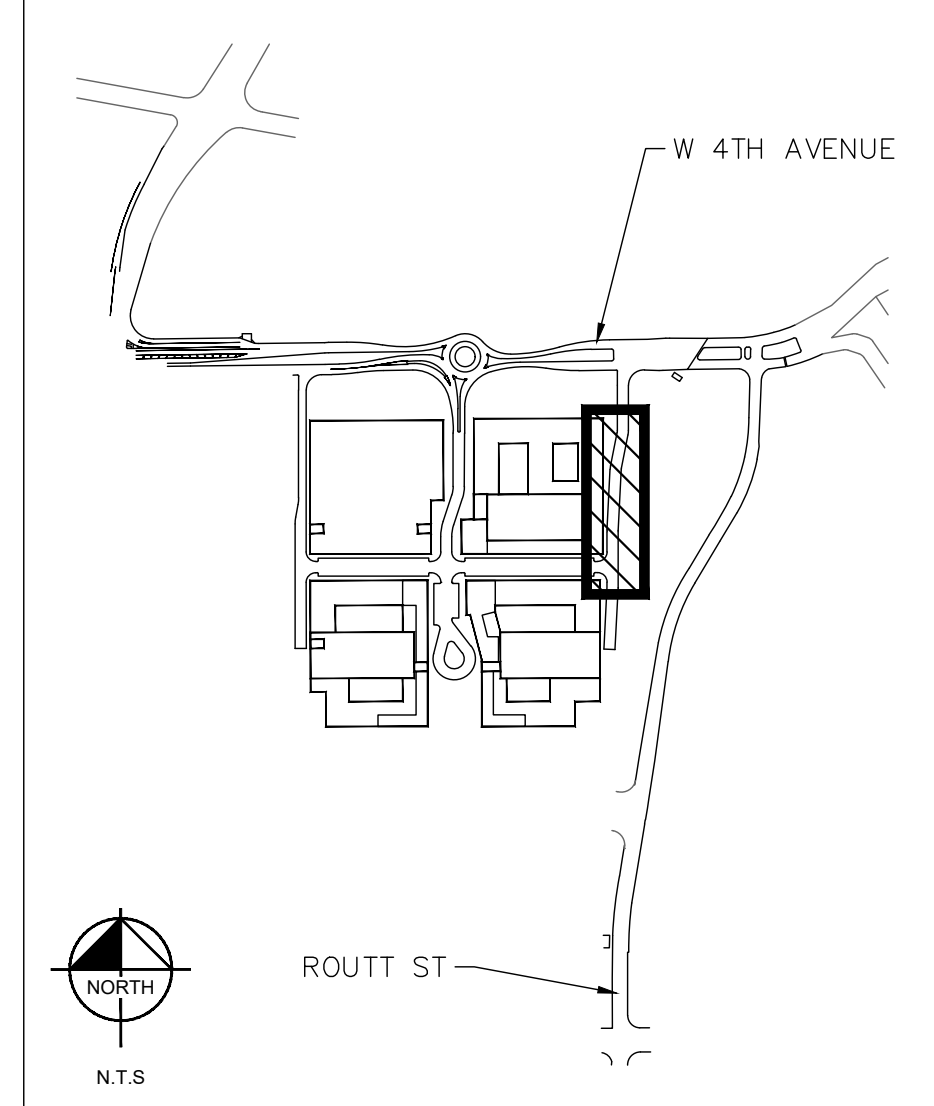
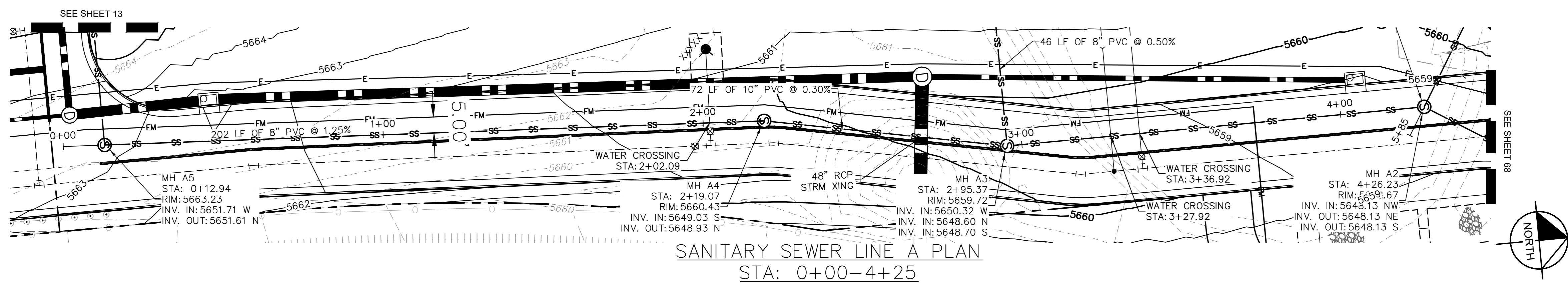
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LAKEWOOD, COLORADO
STRM CULVERT PLAN & PROFILE

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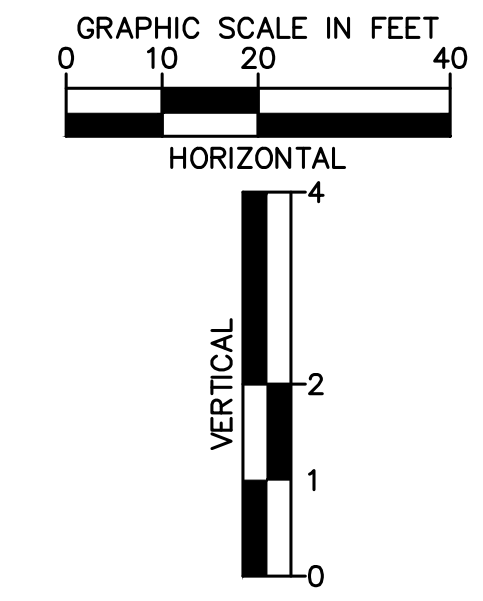
PROJECT NO.
096412006
SHEET
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SITE ADDRESS: _____
PLANNING CASE NO. ZP24-0005

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LEGEND	
	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



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DESIGNED BY: MMR
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 CHECKED BY: KEW
 DATE: 05/31/24

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 LAKEWOOD COLORADO
 SANITARY SEWER A PLAN & PROFILE (1 OF 2)

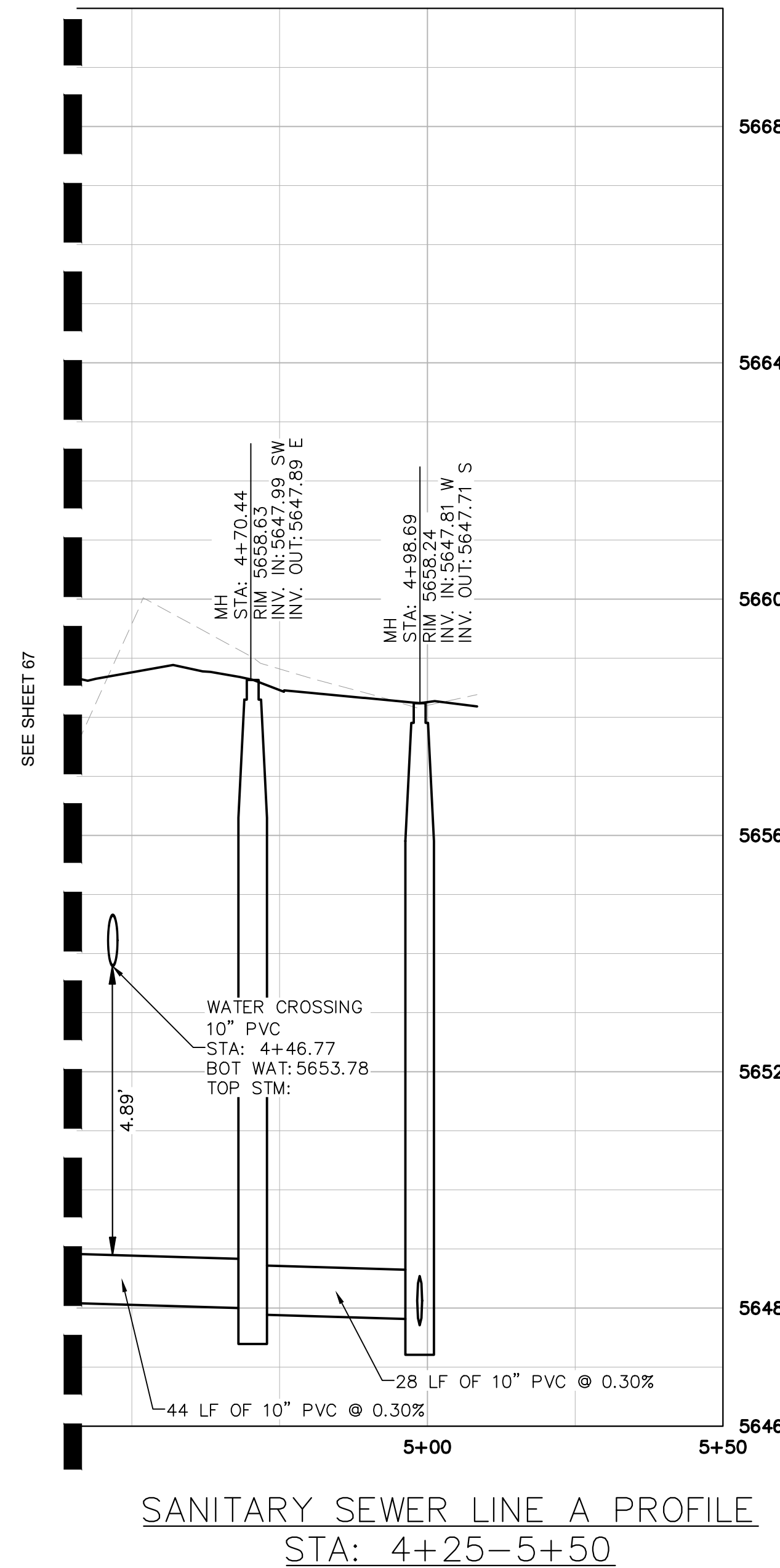
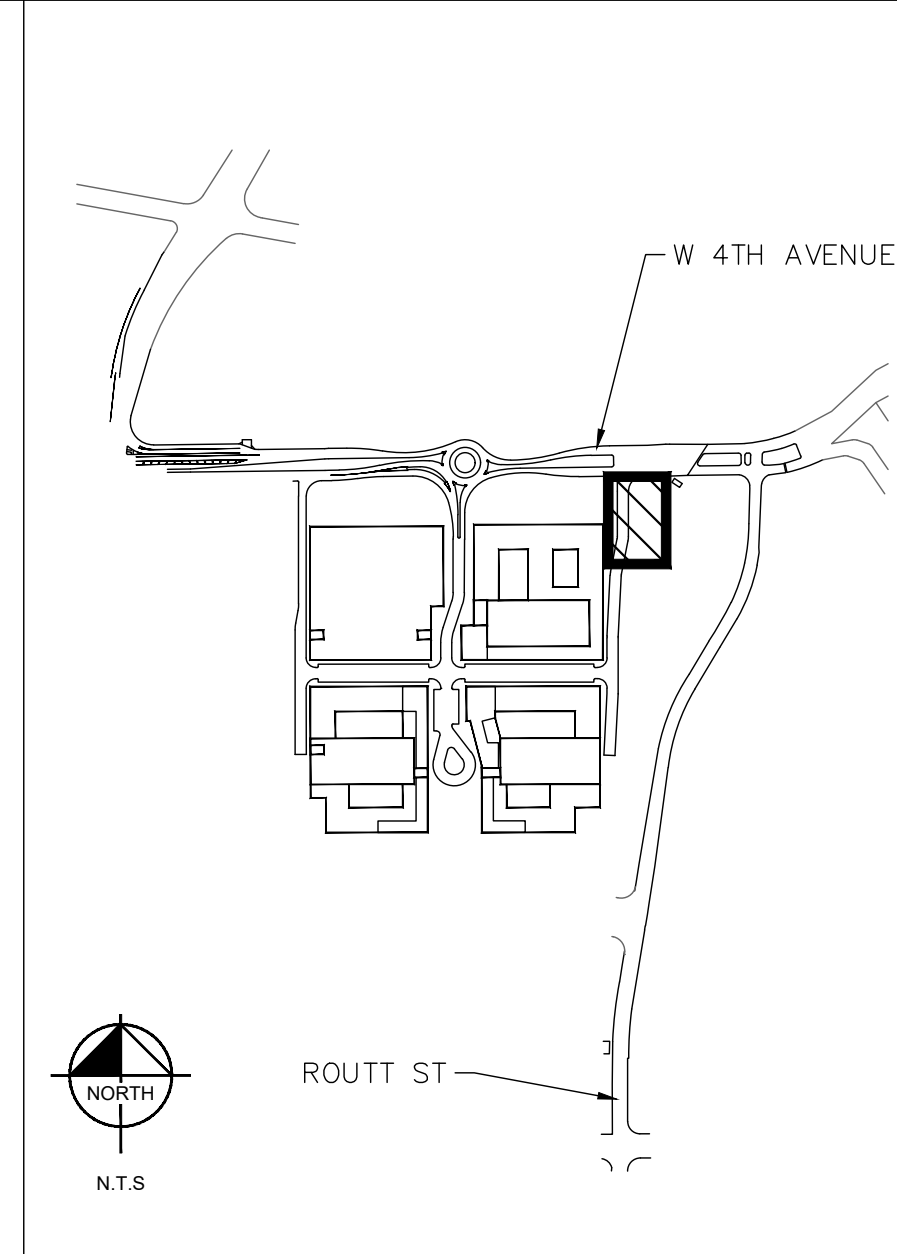
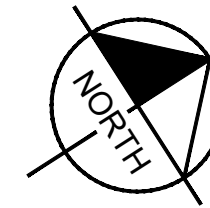
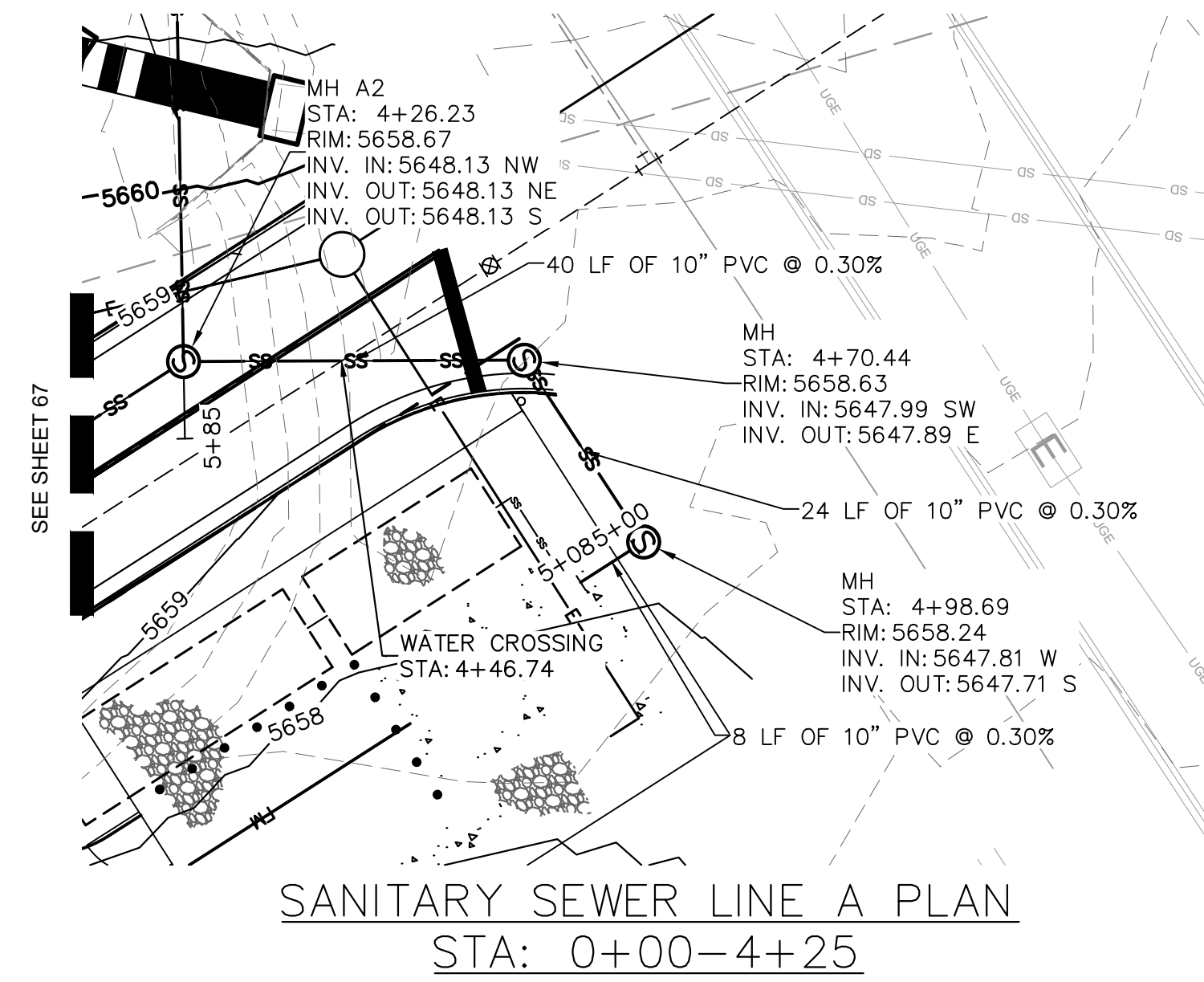
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PROJECT NO.
 096412006

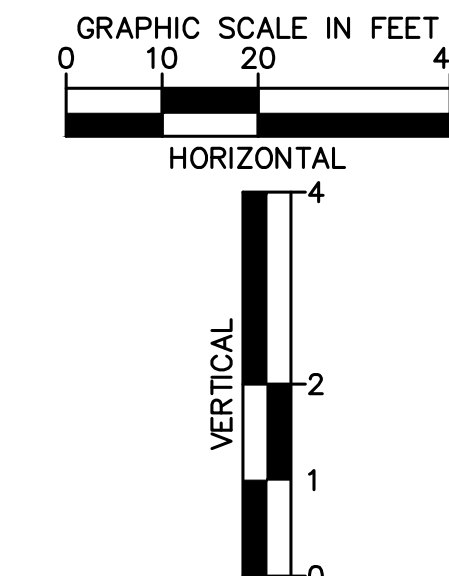
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LEGEND	
	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



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 GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
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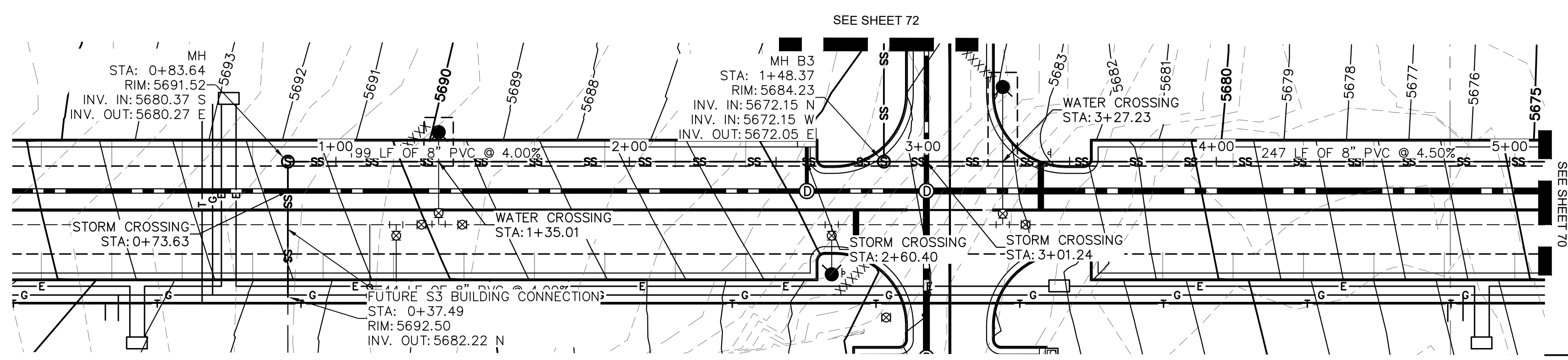
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 LAKEWOOD COLORADO
 SANITARY SEWER A PLAN & PROFILE (2 OF 2)

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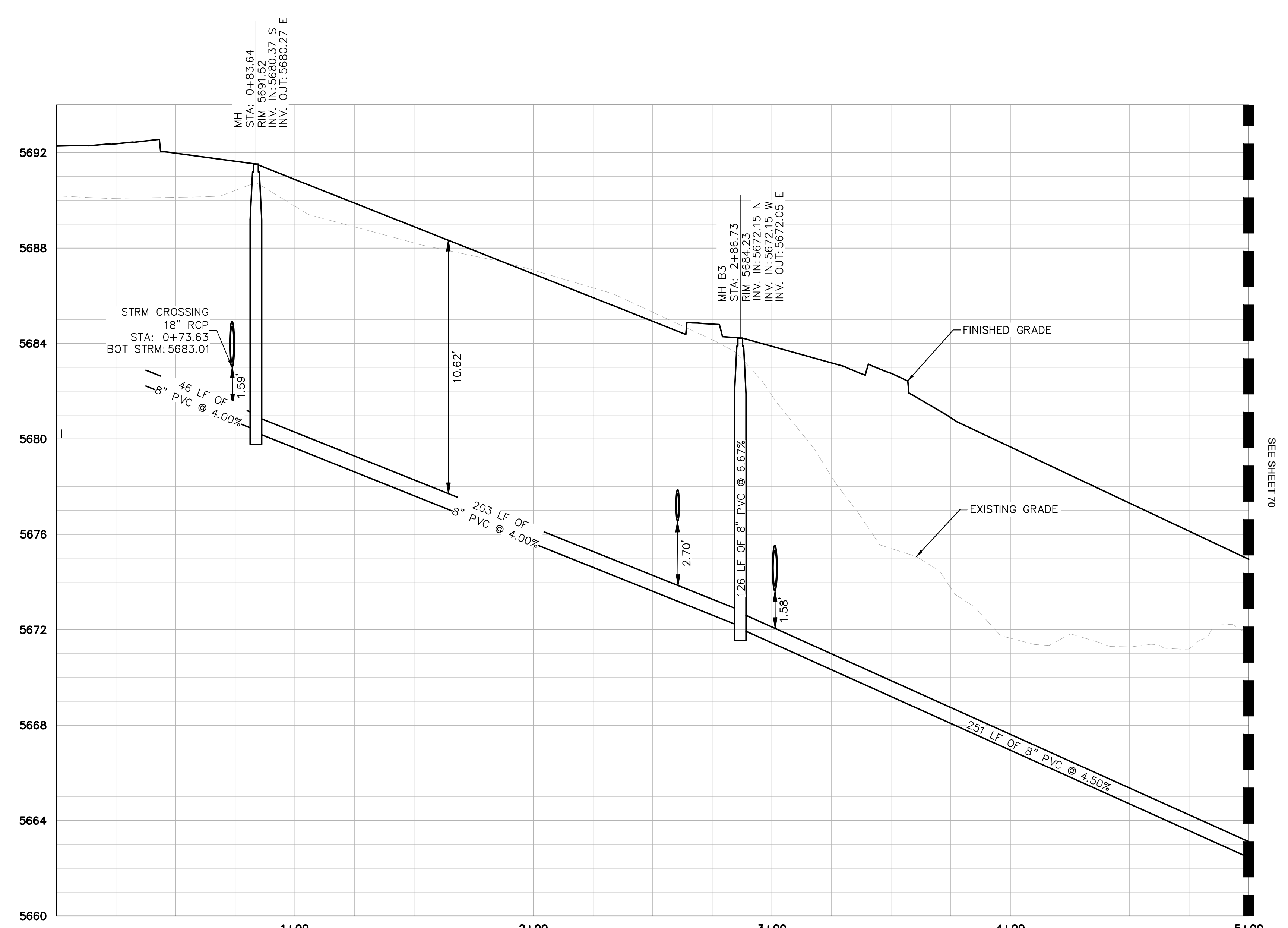
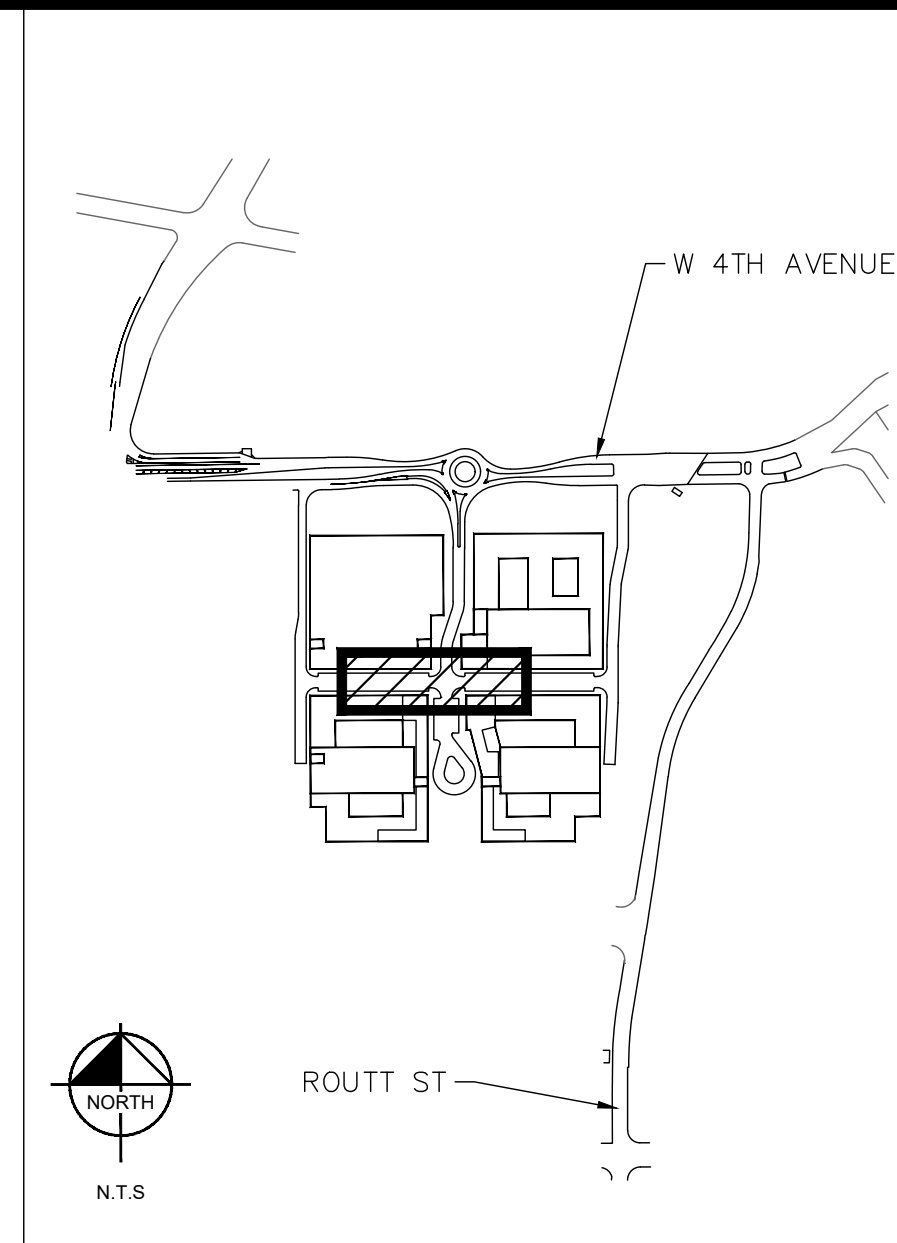
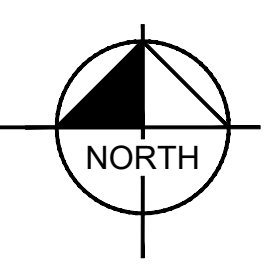
PROJECT NO.
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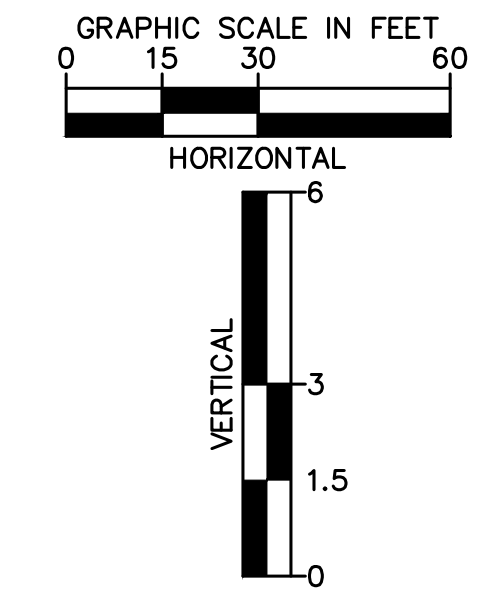
SANITARY SEWER LINE B PLAN
STA: 0+00-5+00



SANITARY SEWER LINE B PROFILE
STA: 0+00-5+00

LEGEND

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	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



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GREENWOOD VILLAGE, CO 80111 (303) 228-2300

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CHECKED BY: KEW
DATE: 05/31/24

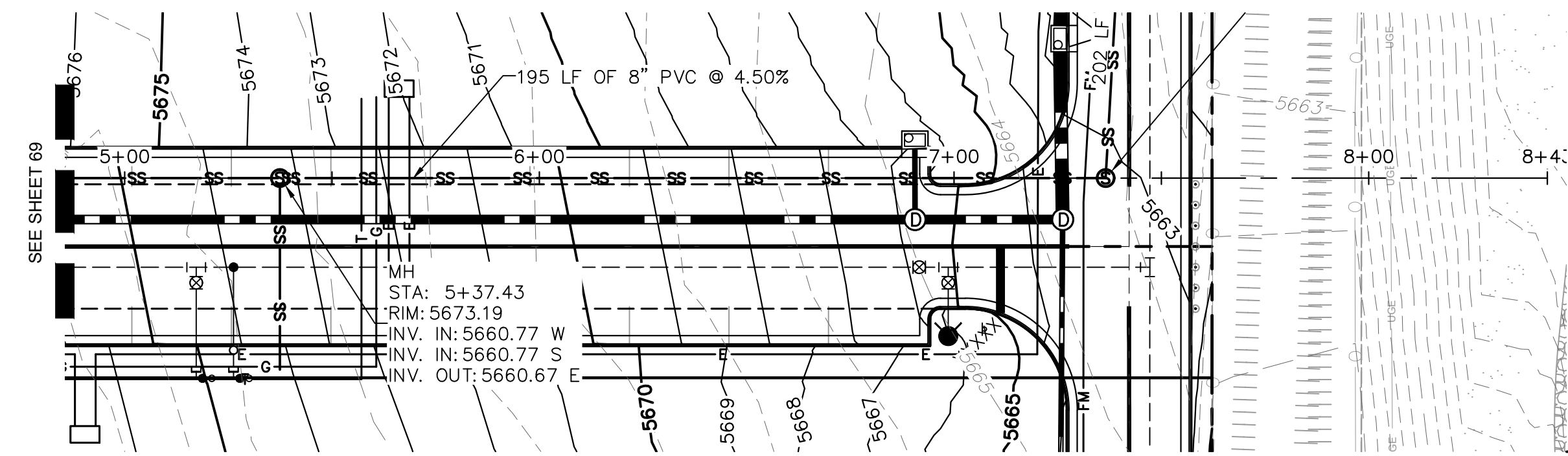
GMWSD - THE BEND
LAKEWOOD COLORADO
SANITARY SEWER B PLAN & PROFILE (1 OF 2)

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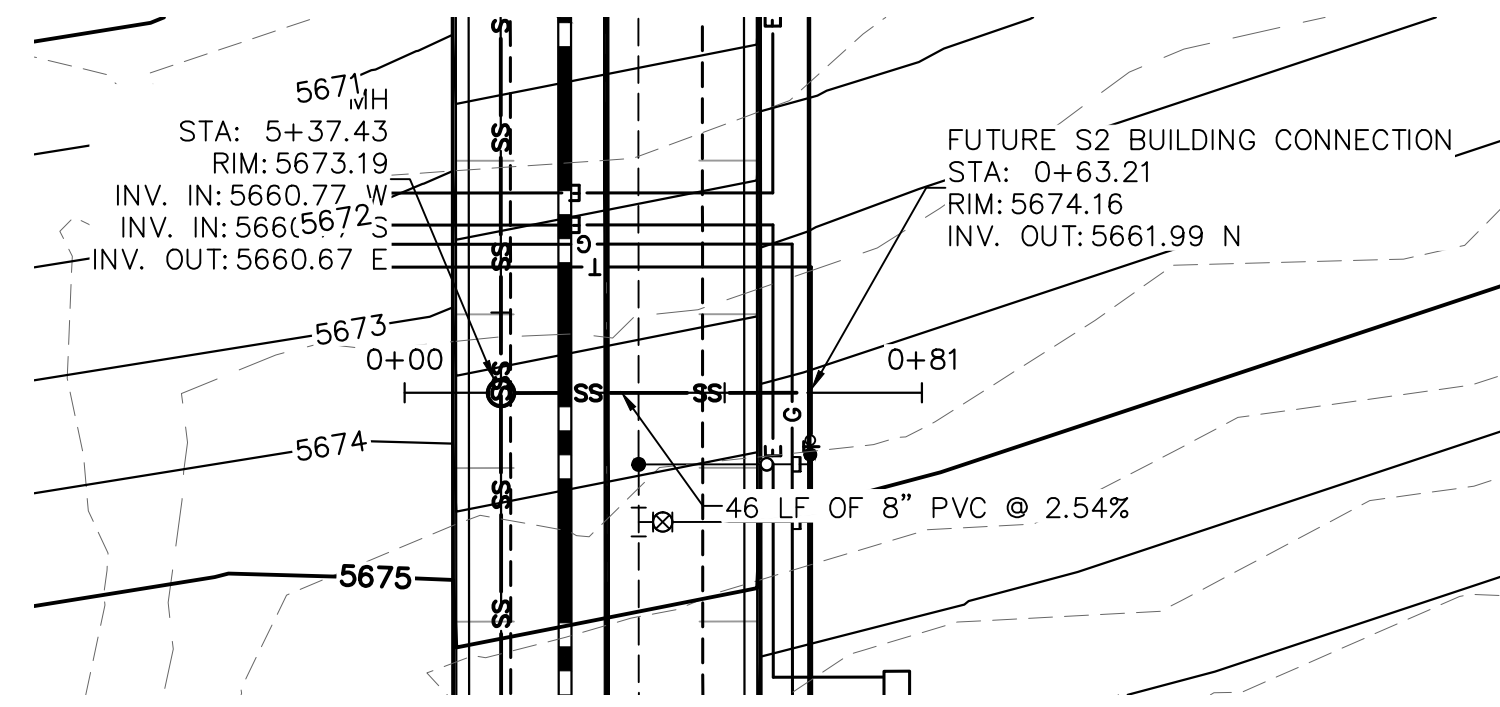
PROJECT NO.
096412006

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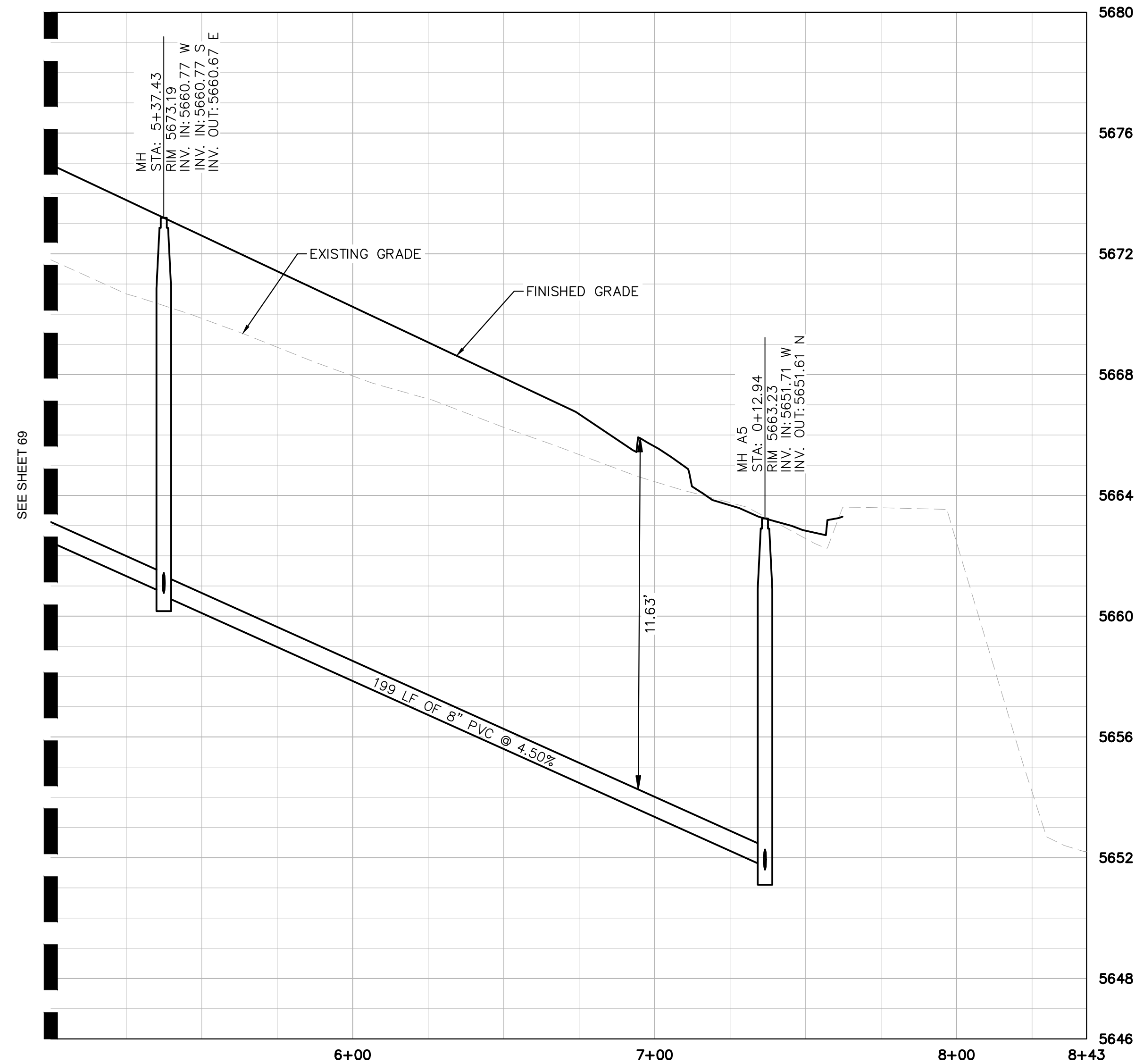
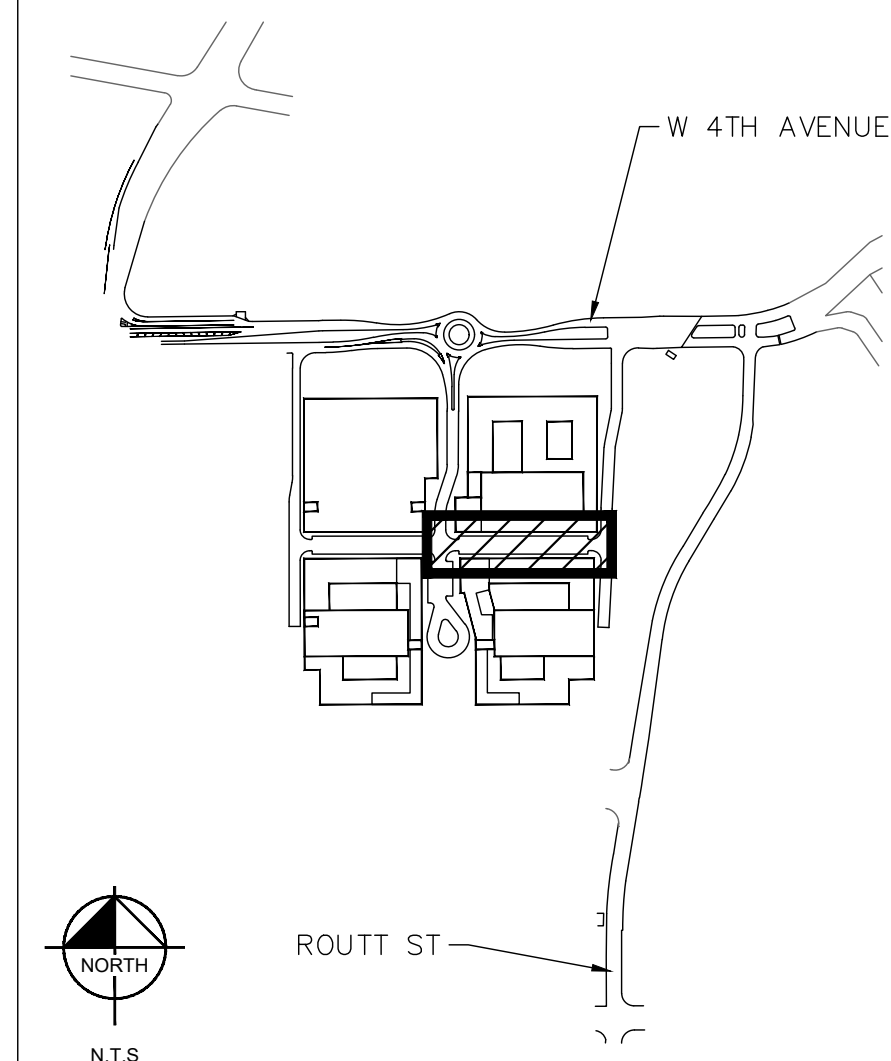
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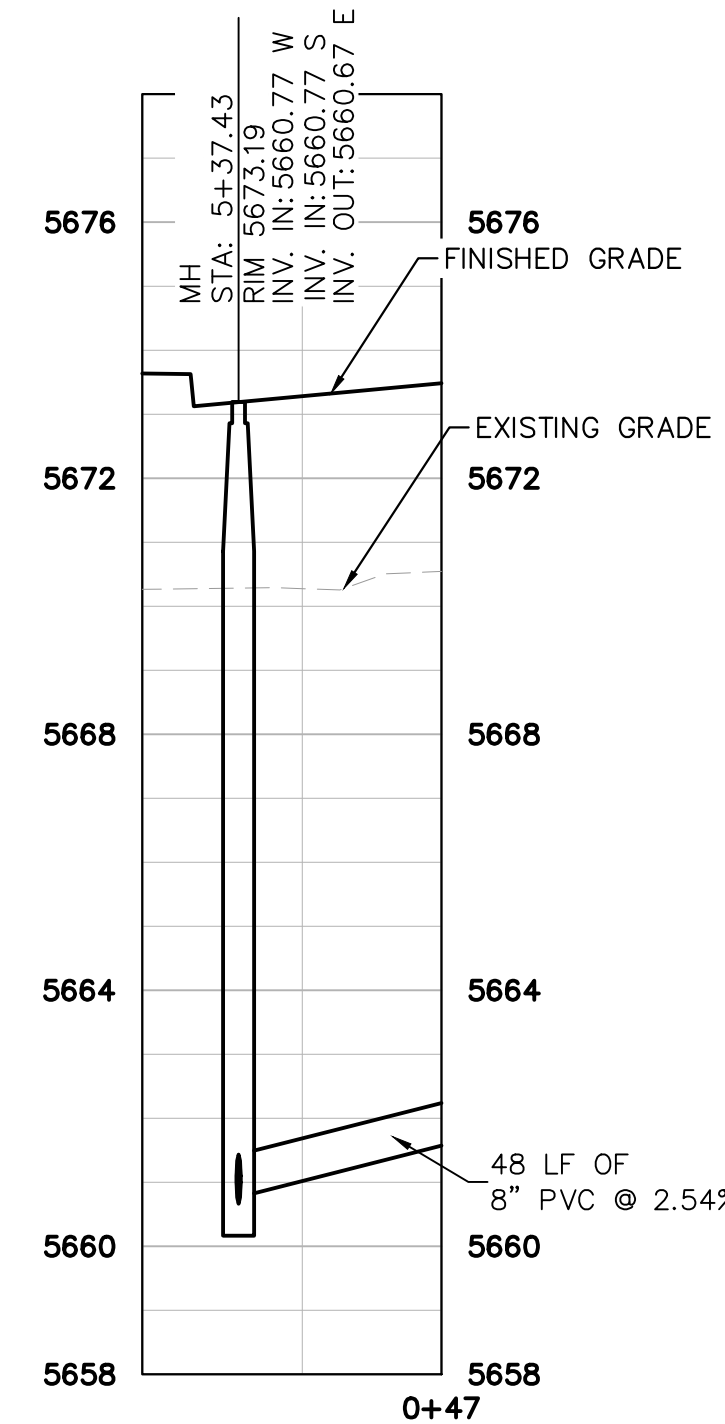
SANITARY SEWER LINE B PLAN
STA: 5+00-8+43



FUTURE S2 BUILDING
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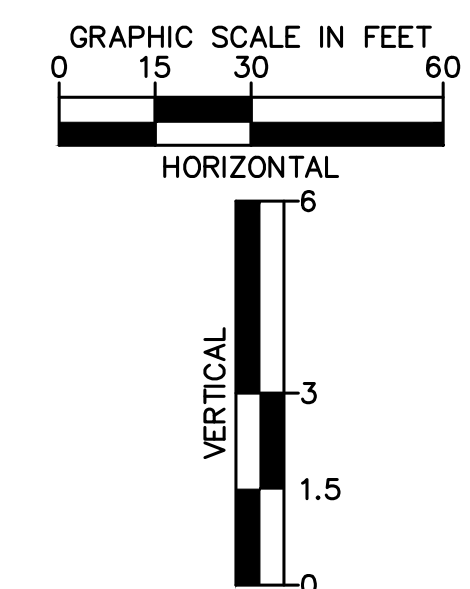


SANITARY SEWER LINE B PROFILE
STA: 5+00-8+43



FUTURE S2 BUILDING
CONNECTION PROFILE

LEGEND	
	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



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GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
DRAWN BY: BAD
CHECKED BY: KEW
DATE: 05/31/24

GMWSD - THE BEND
LAKEWOOD COLORADO
SANITARY SEWER B PLAN & PROFILE (2 OF 2)

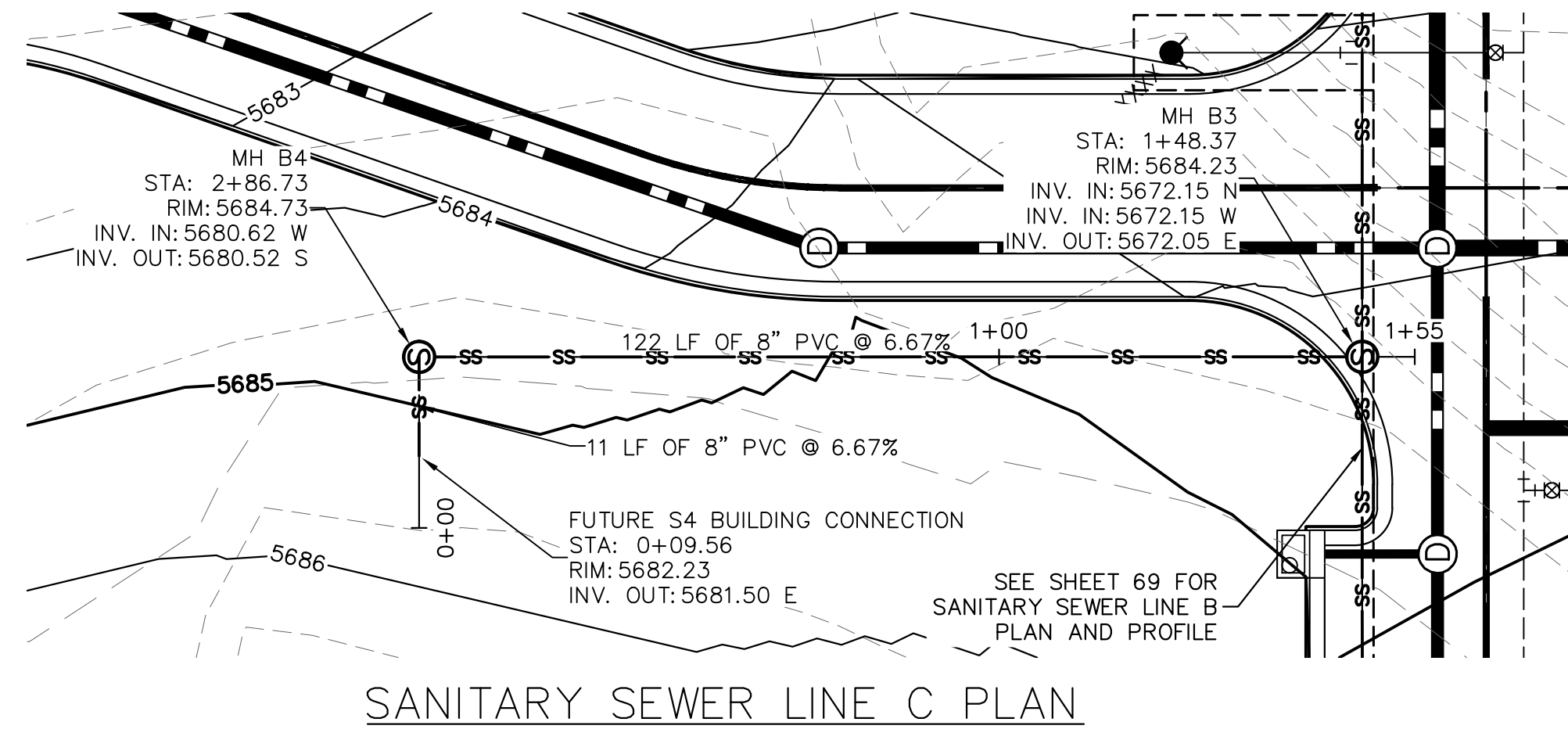
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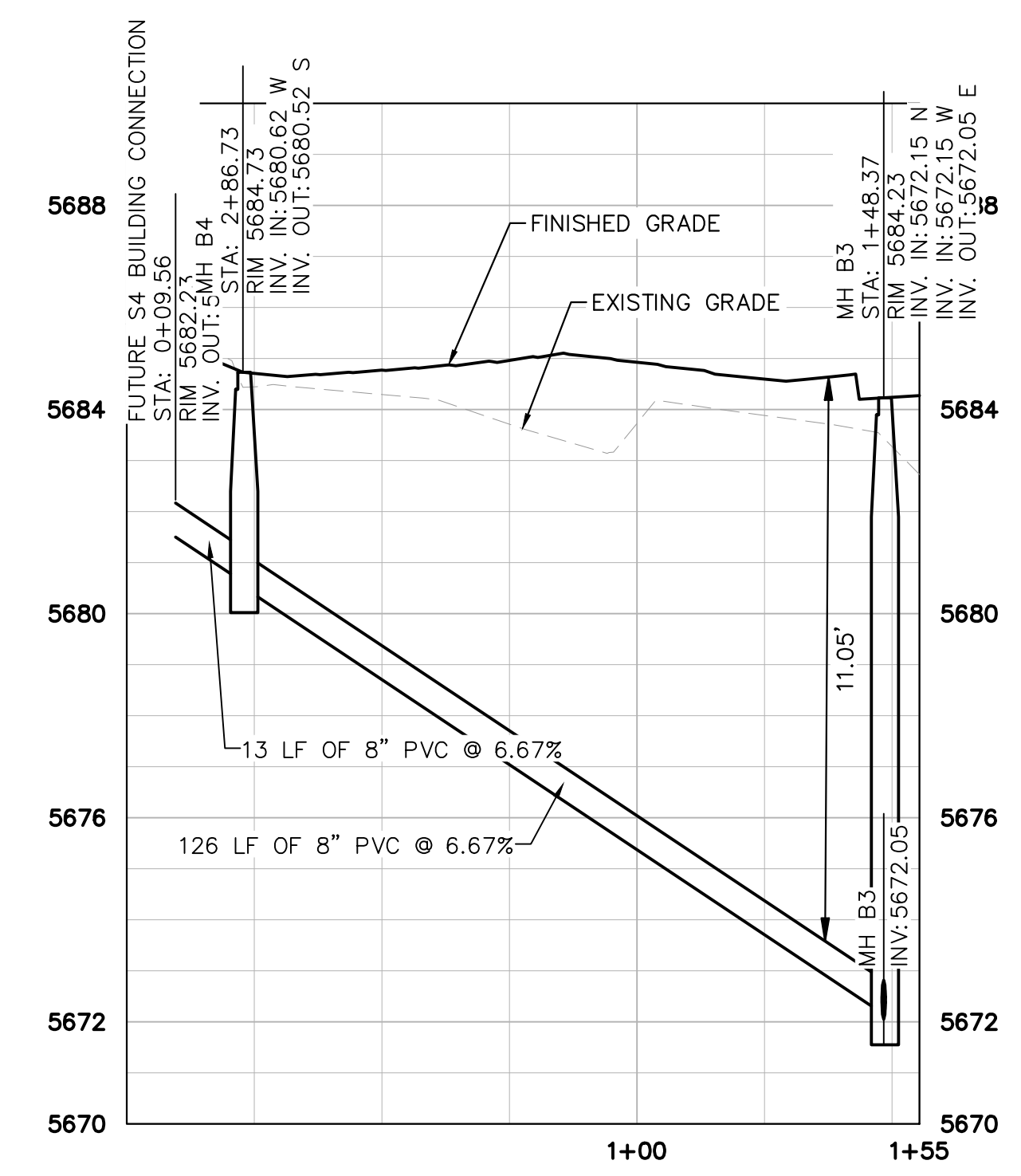
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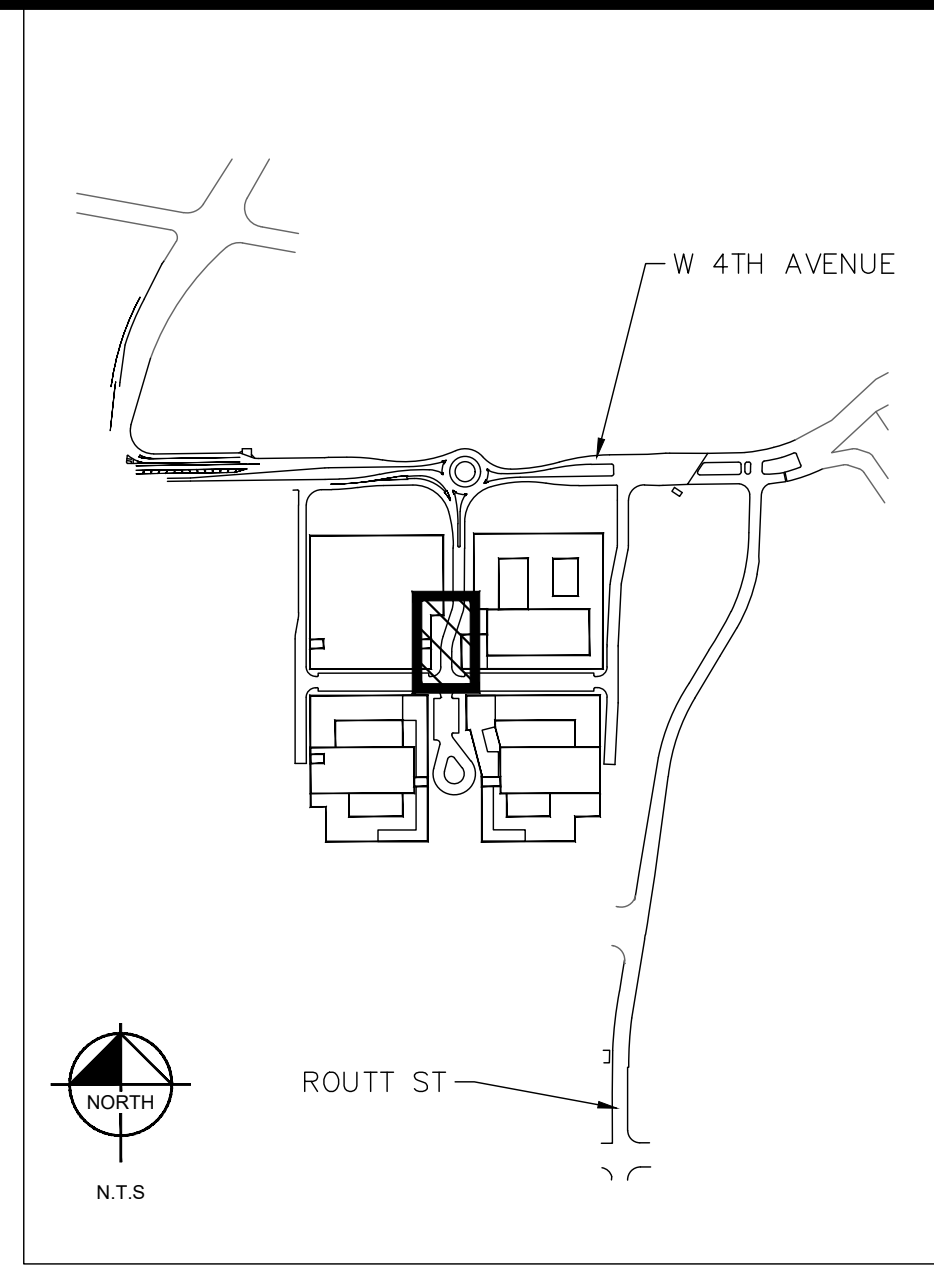
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SANITARY SEWER LINE C PLAN

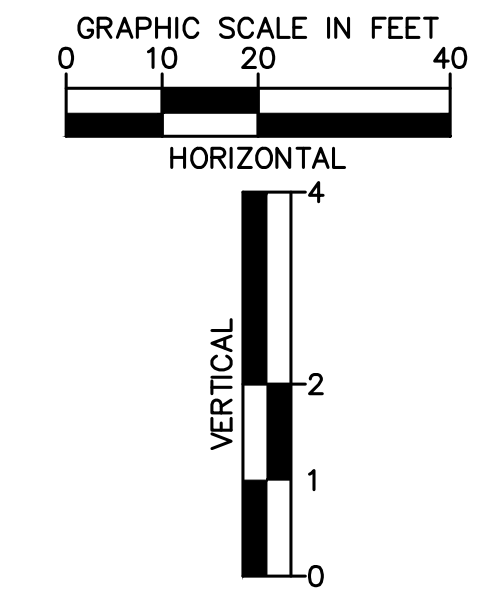


SANITARY SEWER LINE C PROFILE



LEGEND

	ZONE LOT LINE
	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
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	EX. WATER VALVE



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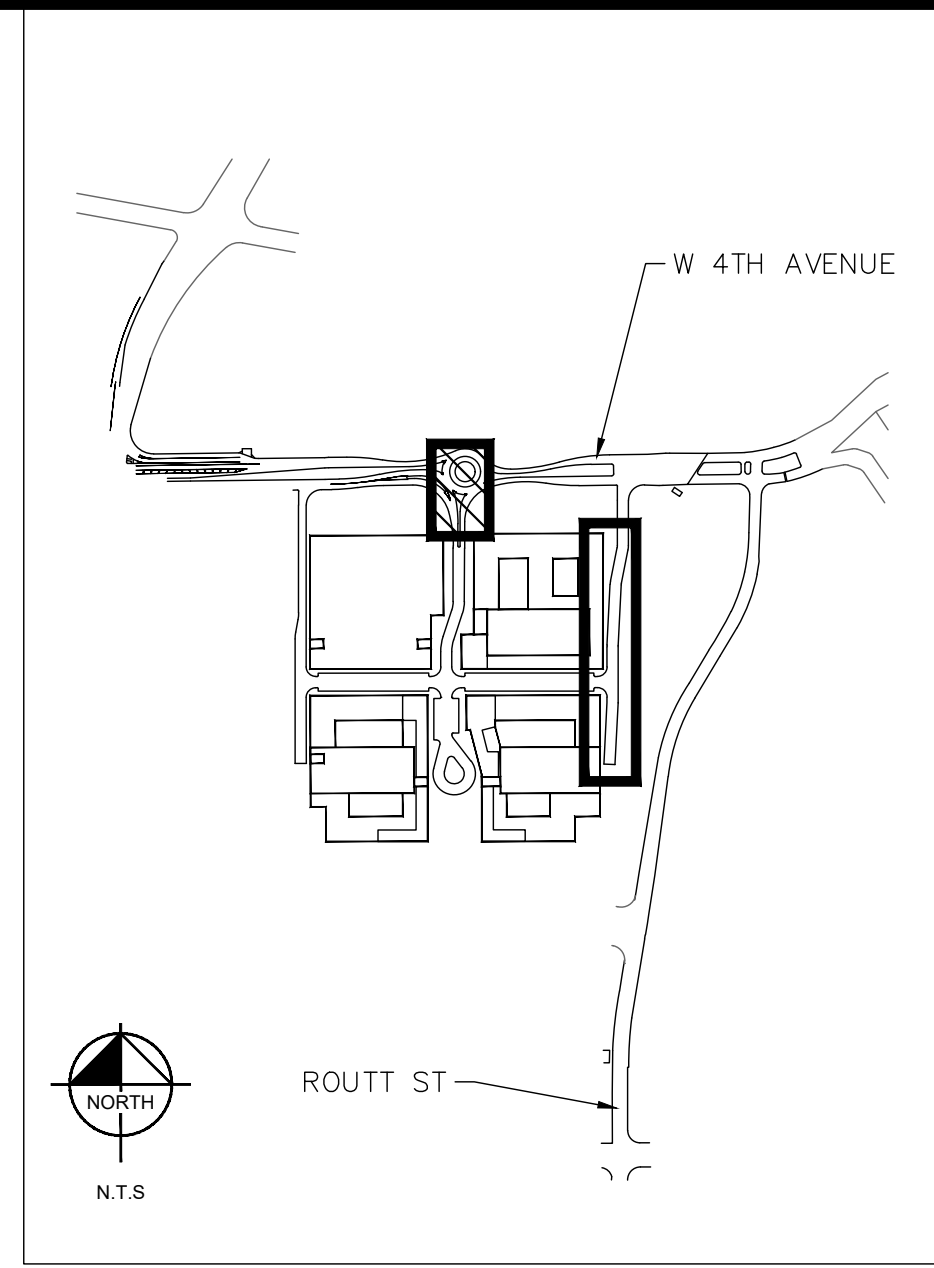
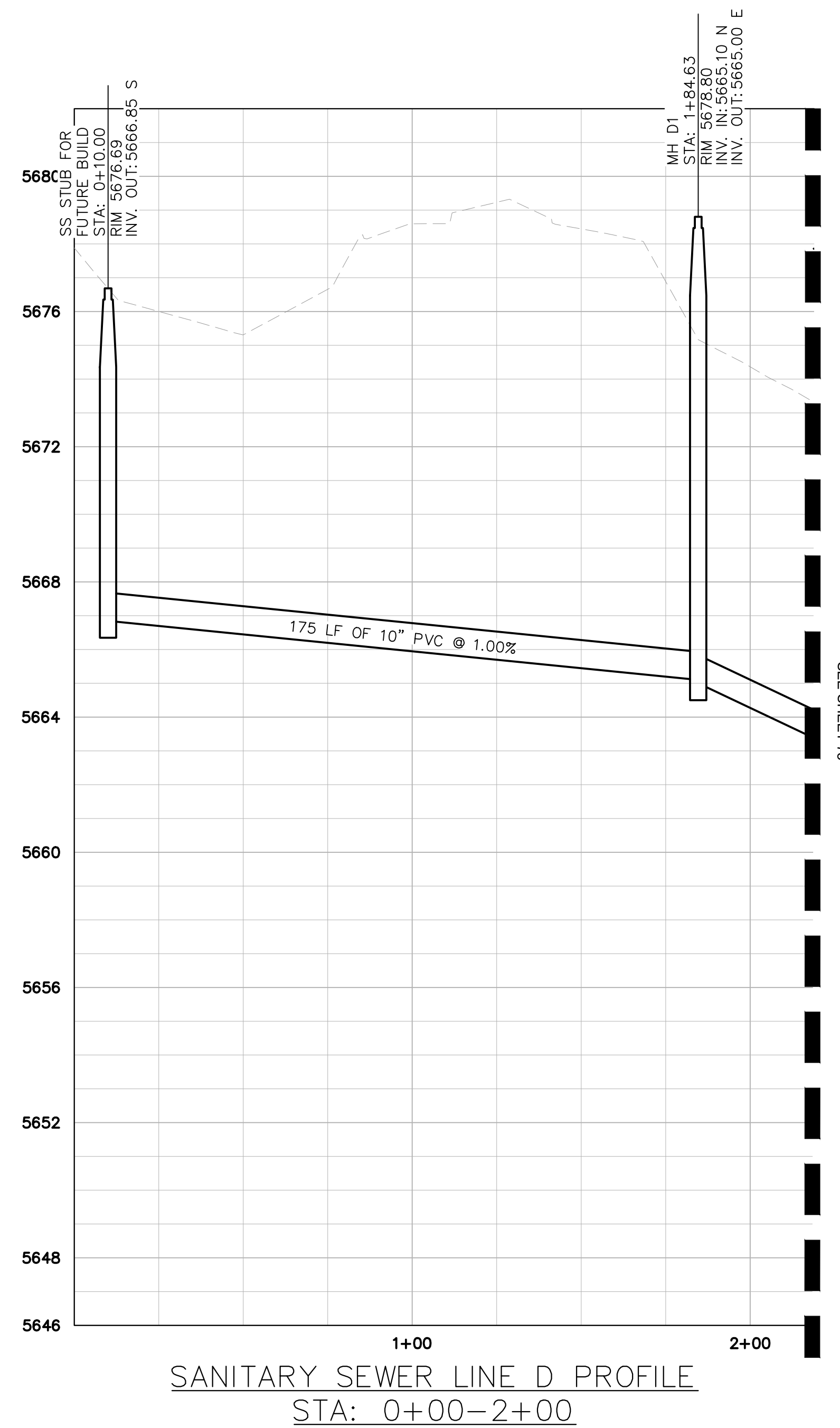
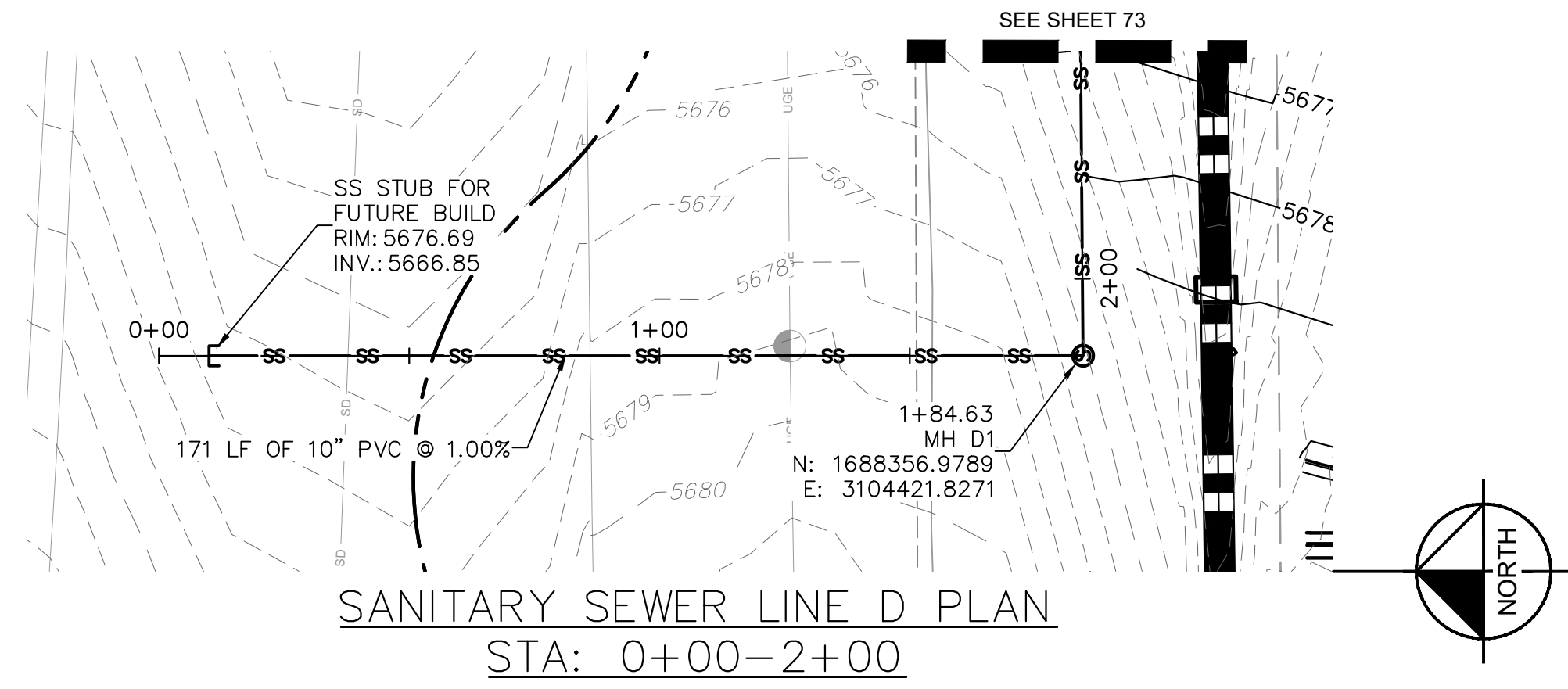
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 SANITARY SEWER C PLAN & PROFILE

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PROJECT NO.
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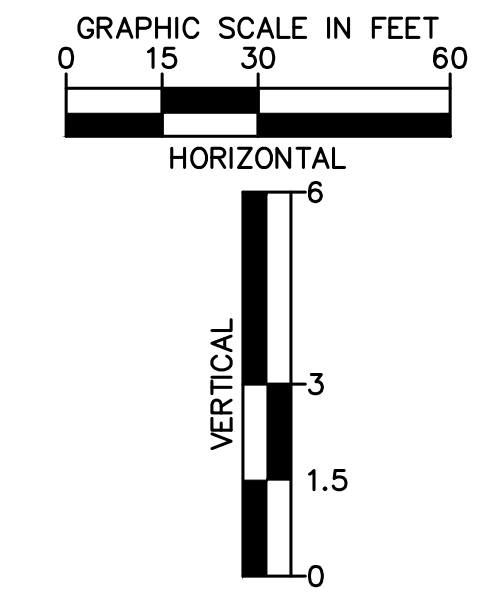
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LEGEND

	ZONE LOT LINE
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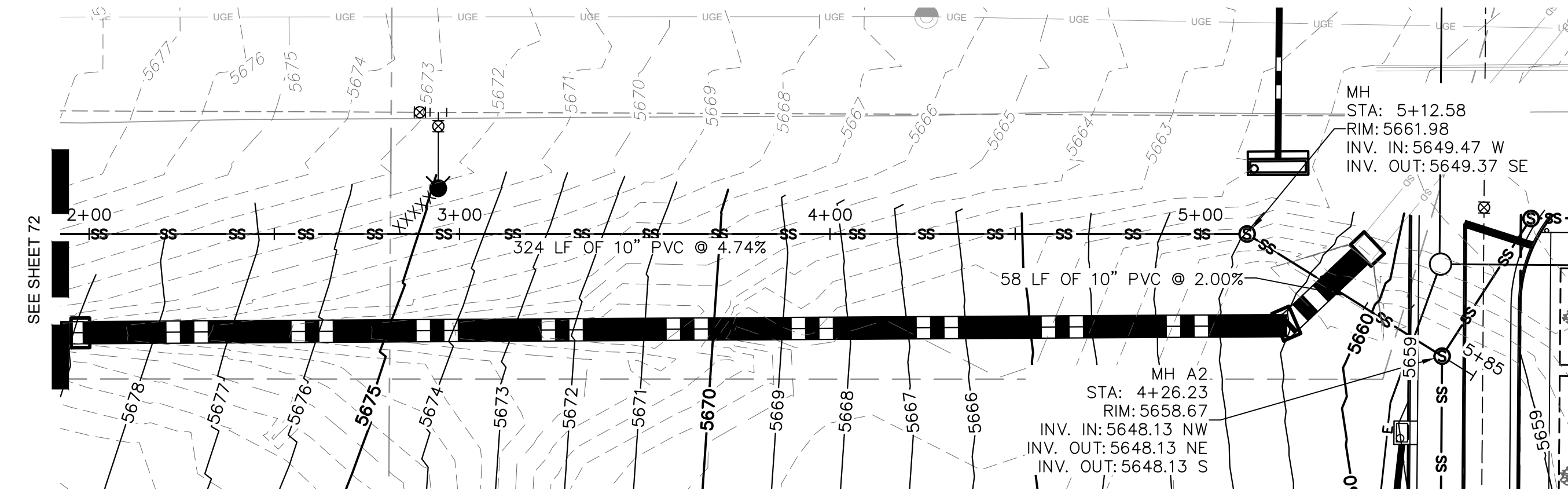
GMWSD - THE BEND
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 SANITARY SEWER D PLAN & PROFILE (1 OF 2)

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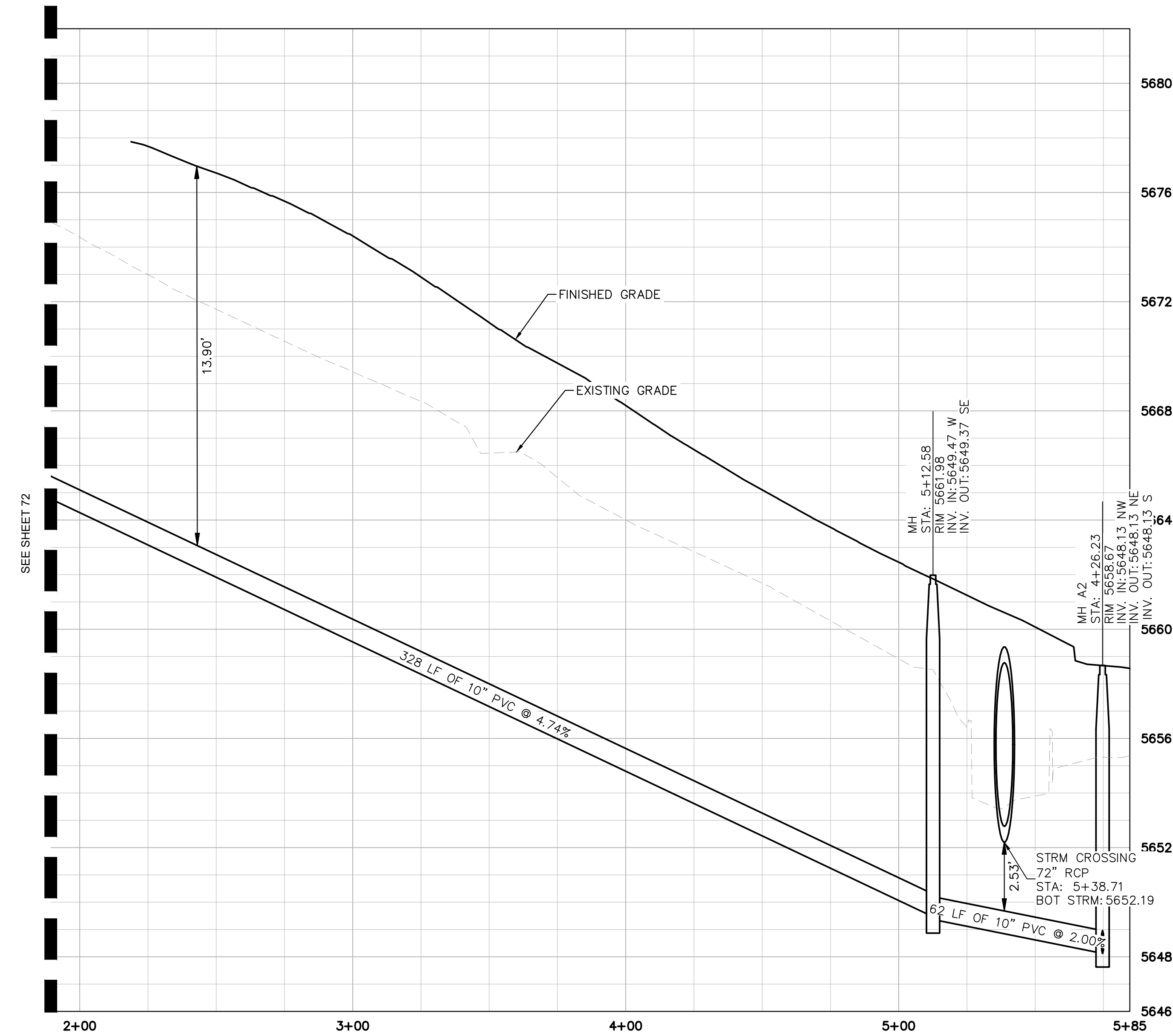
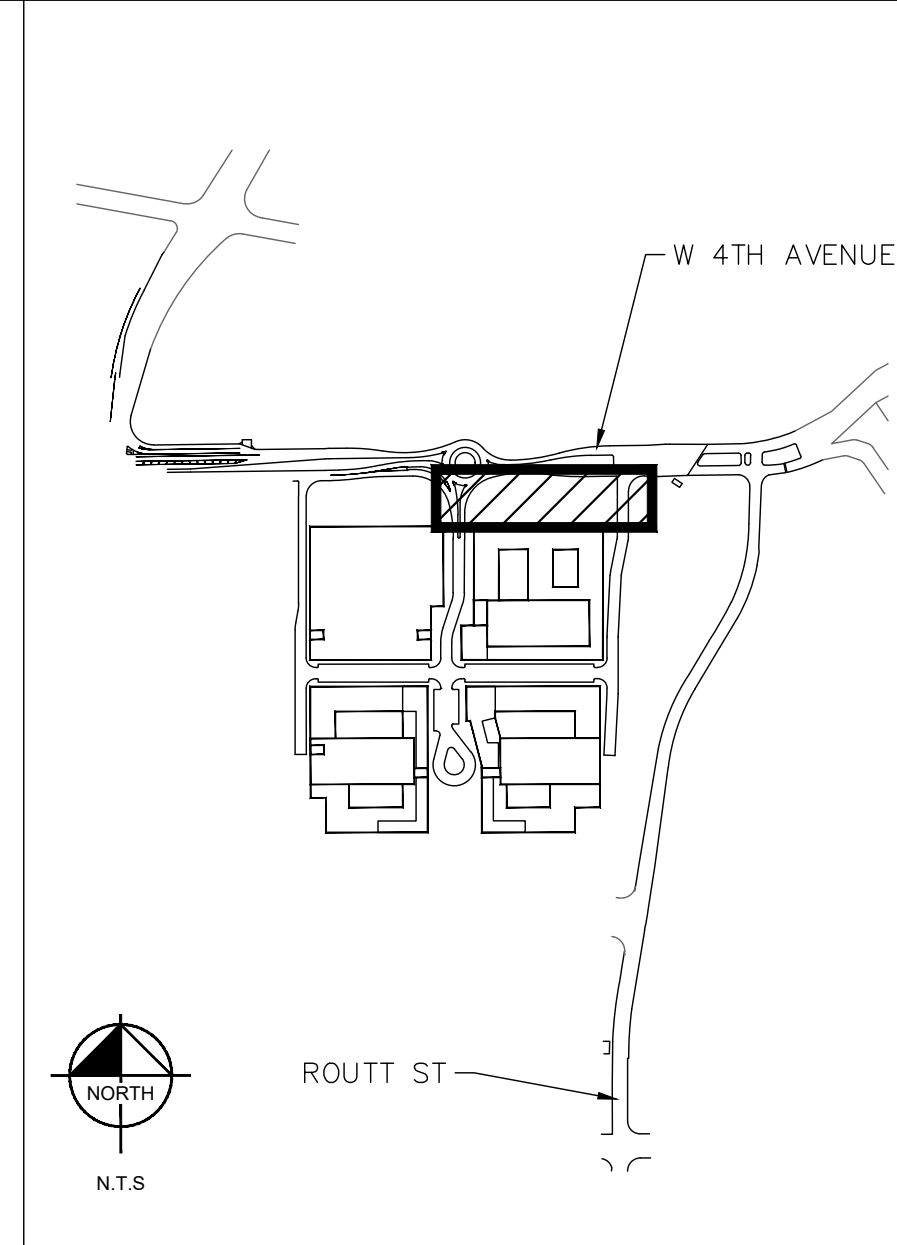
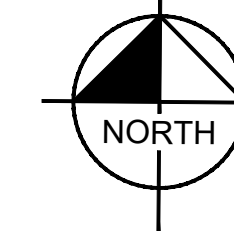
PROJECT NO.
 096412006

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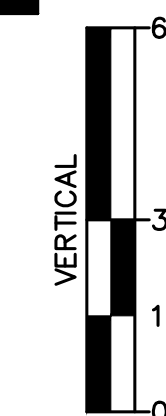
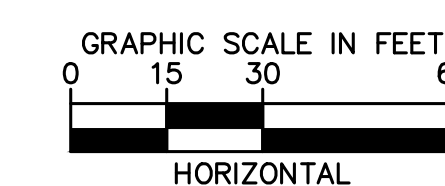


SANITARY SEWER LINE D PLAN
STA: 2+00-5+85



SANITARY SEWER LINE D PROFILE
STA: 2+00-5+85

LEGEND	
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	EX. ZONE LOT LINE
	EASEMENT LINE
	PROP. WATER SERVICE LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	PROP. SITE LIGHT
	PROP. FIRE HYDRANT
	PROP. WATER METER
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. INLET
	EX. STORM MANHOLE
	EX. FIRE HYDRANT
	EX. WATER VALVE



NO.	REVISION	BY	DATE	APPR

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GREENWOOD VILLAGE, CO 80111 (303) 228-2300

DESIGNED BY: MMR
DRAWN BY: BAD
CHECKED BY: KEW
DATE: 05/31/24

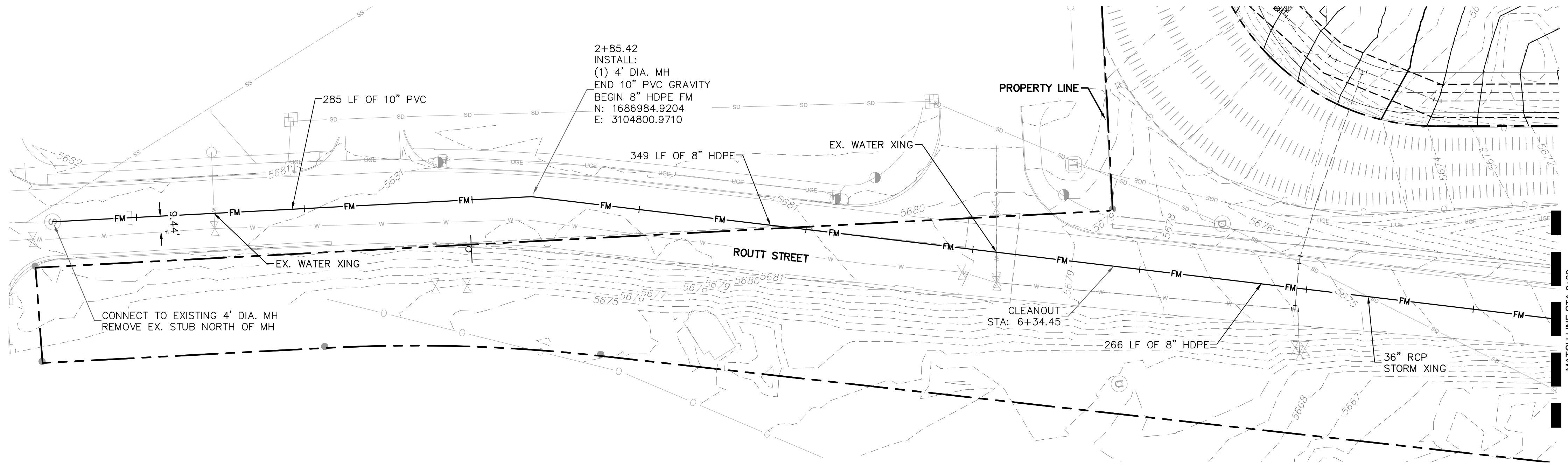
GMWSD - THE BEND
LAKEWOOD COLORADO
SANITARY SEWER D PLAN & PROFILE (2 OF 2)

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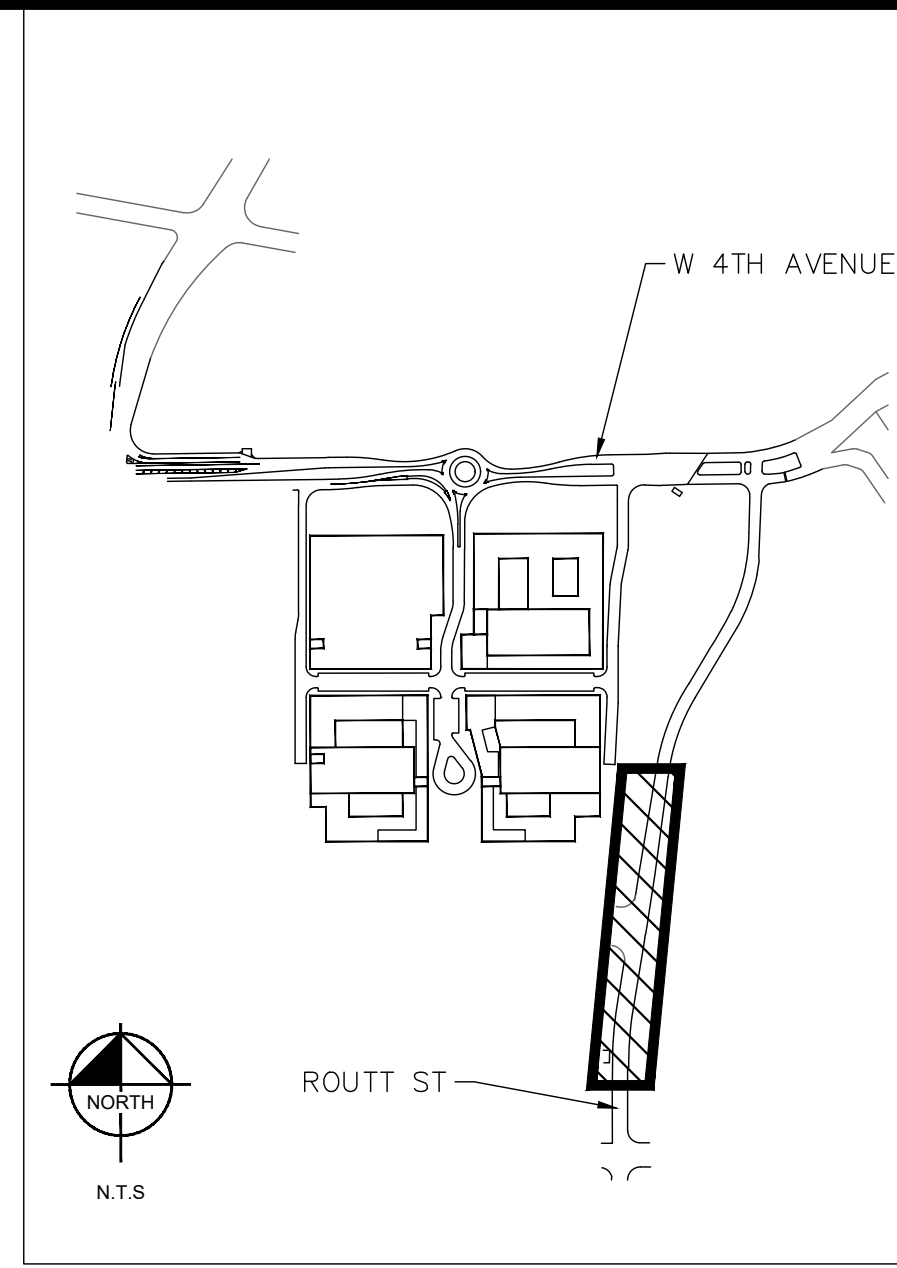
PROJECT NO.
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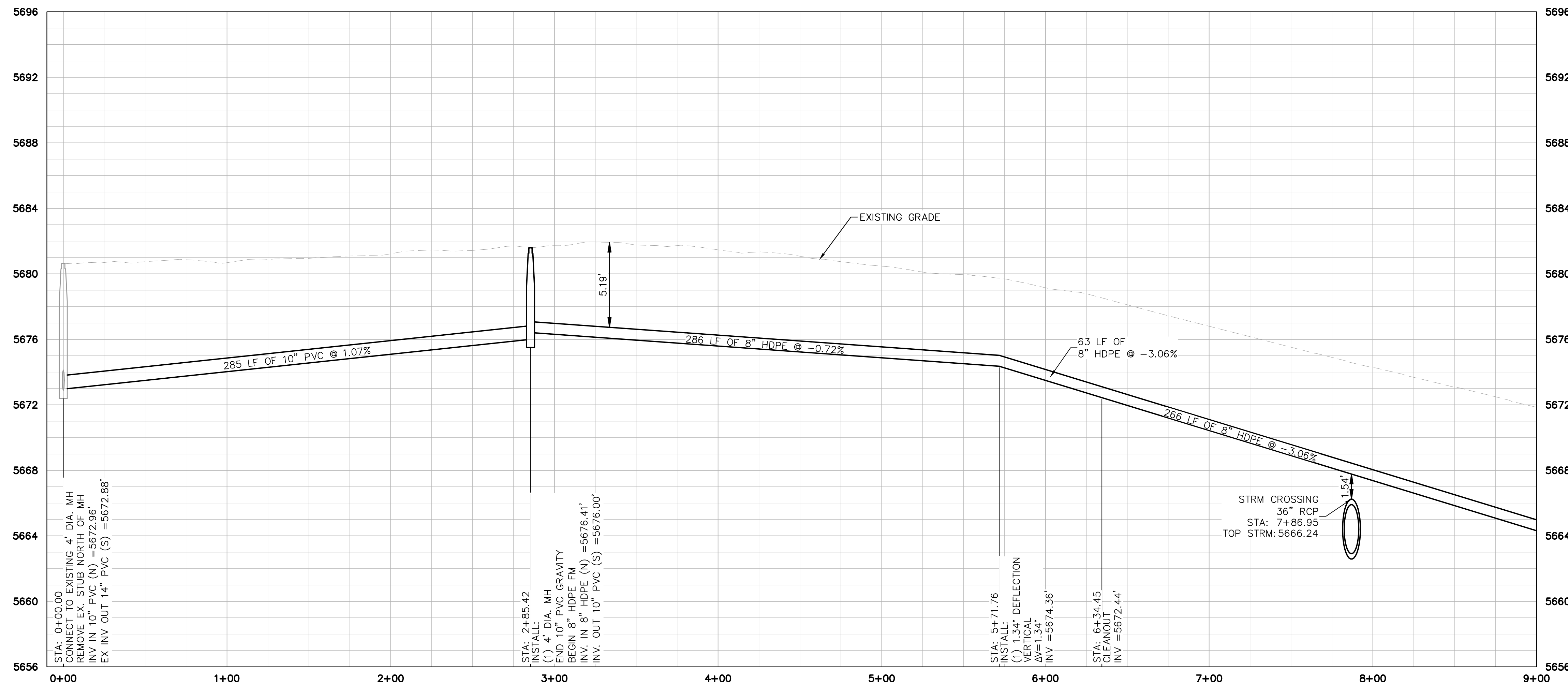
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STA: 0+00-9+00

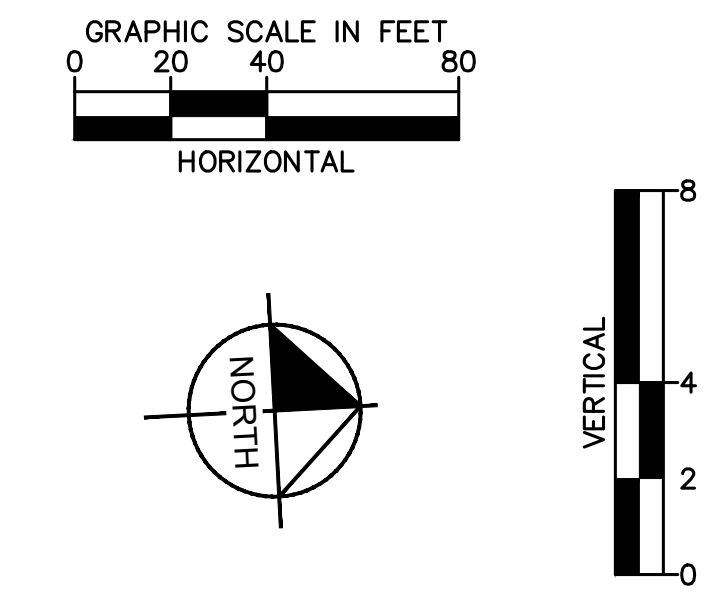


LEGEND	
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	EASEMENT LINE
	RTD TRACKS
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	PROP. SITE FENCE
	PROP. WATER SERVICE LINE
	PROP. GAS LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	EX. CHAIN LINK FENCE
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. SANITARY MANHOLE
	EX. STORM MANHOLE



SANITARY SEWER FORCE MAIN PROFILE
STA: 0+00-9+00

- GENERAL NOTES:**
- CONTRACTOR TO VERIFY EXISTING GRADES SHOWN ON THE PLANS.
 - IF A CONFLICT OCCURS BETWEEN THESE PLANS AND FIELD LOCATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
 - FOR HDPE: ALL PIPE DEFLECTIONS SHALL BE ACHIEVED BY BENDING THE PIPE USING A MINIMUM BEND RADIUS OF 1.5 TIMES THE MANUFACTURER'S RECOMMENDATION. IF 1.5 TIMES BEND RADIUS CANNOT BE ACCOMMODATED, A DI MJ BEND MUST BE USED TO ACHIEVE DEFLECTION UNLESS OTHERWISE NOTED IN THE PLANS.



NO.	REVISION	BY	DATE	APPR

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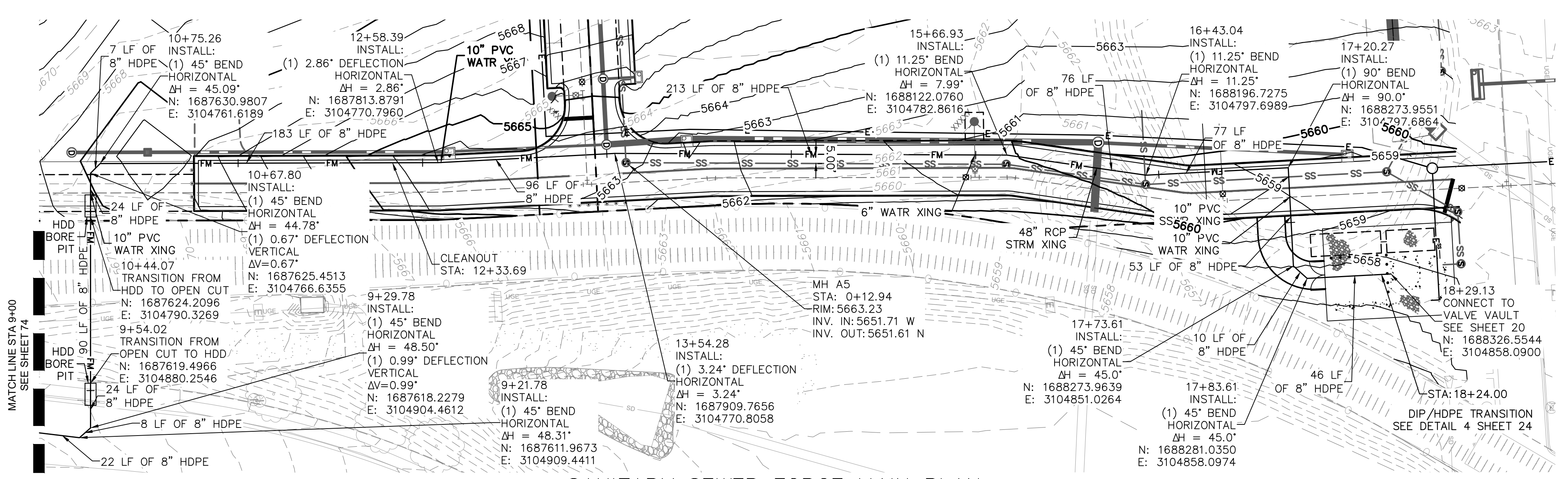
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DRAWN BY: ZMT
CHECKED BY: ARD
DATE: 5/31/24

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LAKEWOOD COLORADO
SANITARY SEWER FORCE MAIN PLAN & PROFILE (1 OF 2)

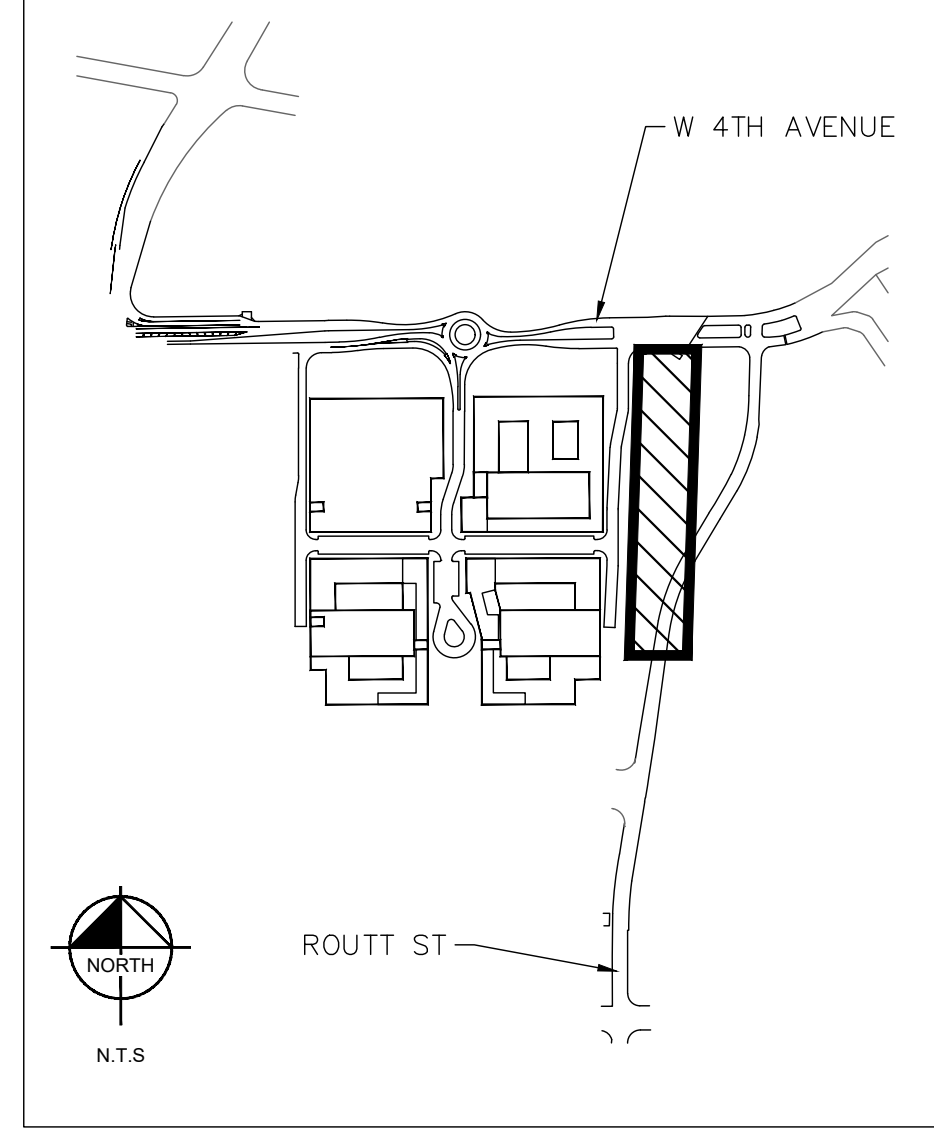
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PROJECT NO. 096412006
SHEET

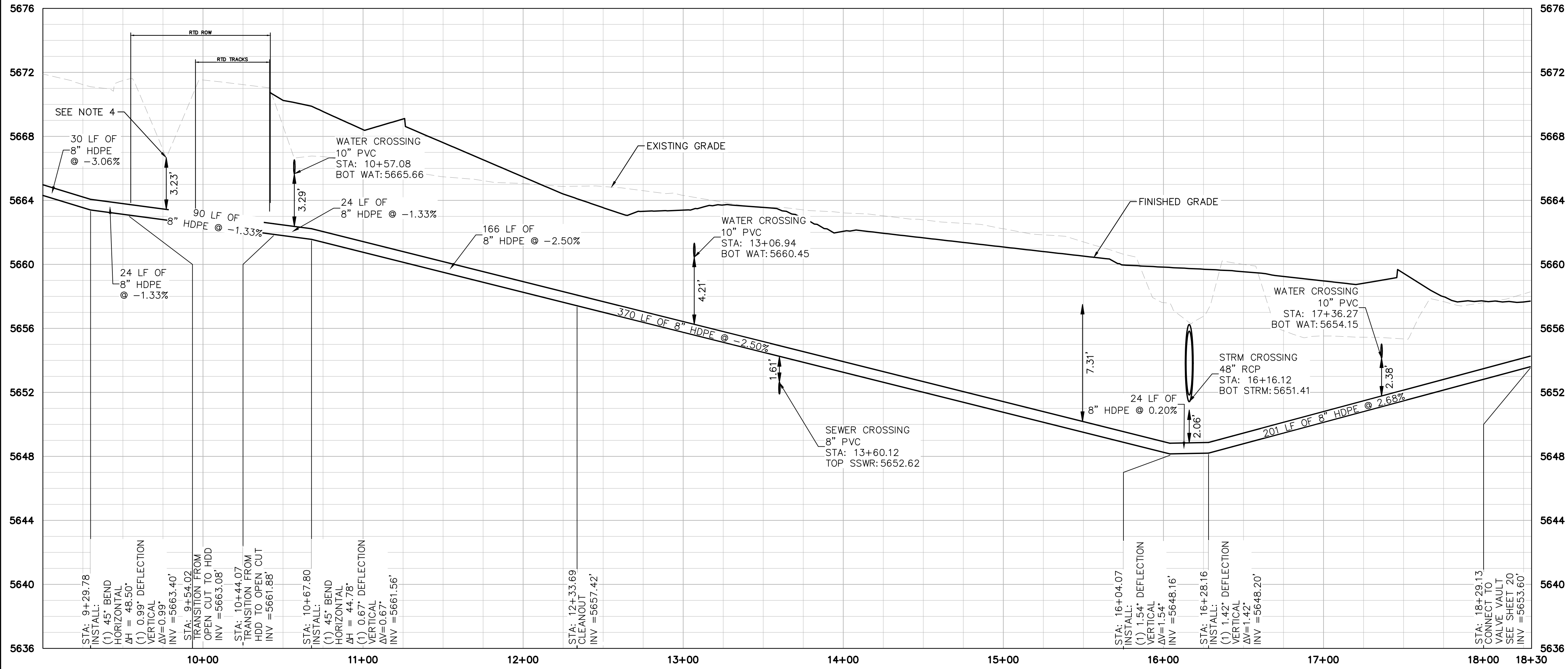
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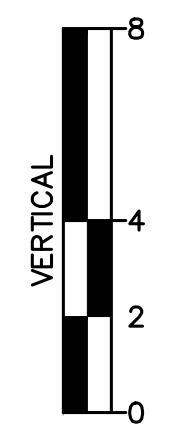
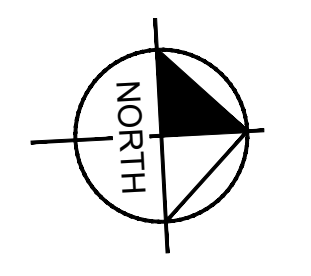
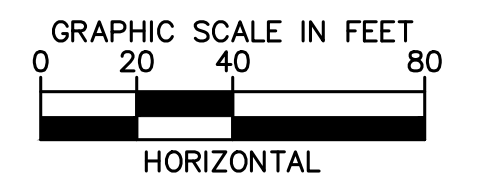


LEGEND	
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	EASEMENT LINE
	RTD TRACKS
	PROP. FORCE MAIN
	PROP. SITE FENCE
	PROP. WATER SERVICE LINE
	PROP. GAS LINE
	PROP. ELECTRIC LINE
	PROP. SANITARY LINE
	PROP. STORM SEWER
	PROP. STORM INLET
	PROP. STORM MANHOLE
	PROP. SANITARY MANHOLE
	EX. CHAIN LINK FENCE
	EX. ELECTRIC LINE
	EX. FIBER OPTIC LINE
	EX. SANITARY LINE
	EX. STORM LINE
	EX. WATER MAIN
	EX. SANITARY MANHOLE
	EX. STORM MANHOLE



SANITARY SEWER FORCE MAIN PROFILE
STA: 9+00-18+29

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- CONTRACTOR TO VERIFY EXISTING GRADES SHOWN ON THE PLANS.
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DESIGNED BY: RKR
DRAWN BY: ZMT
CHECKED BY: ARD
DATE: 5/31/24

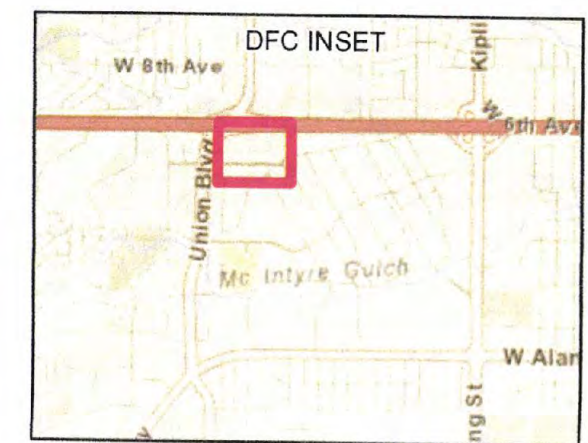
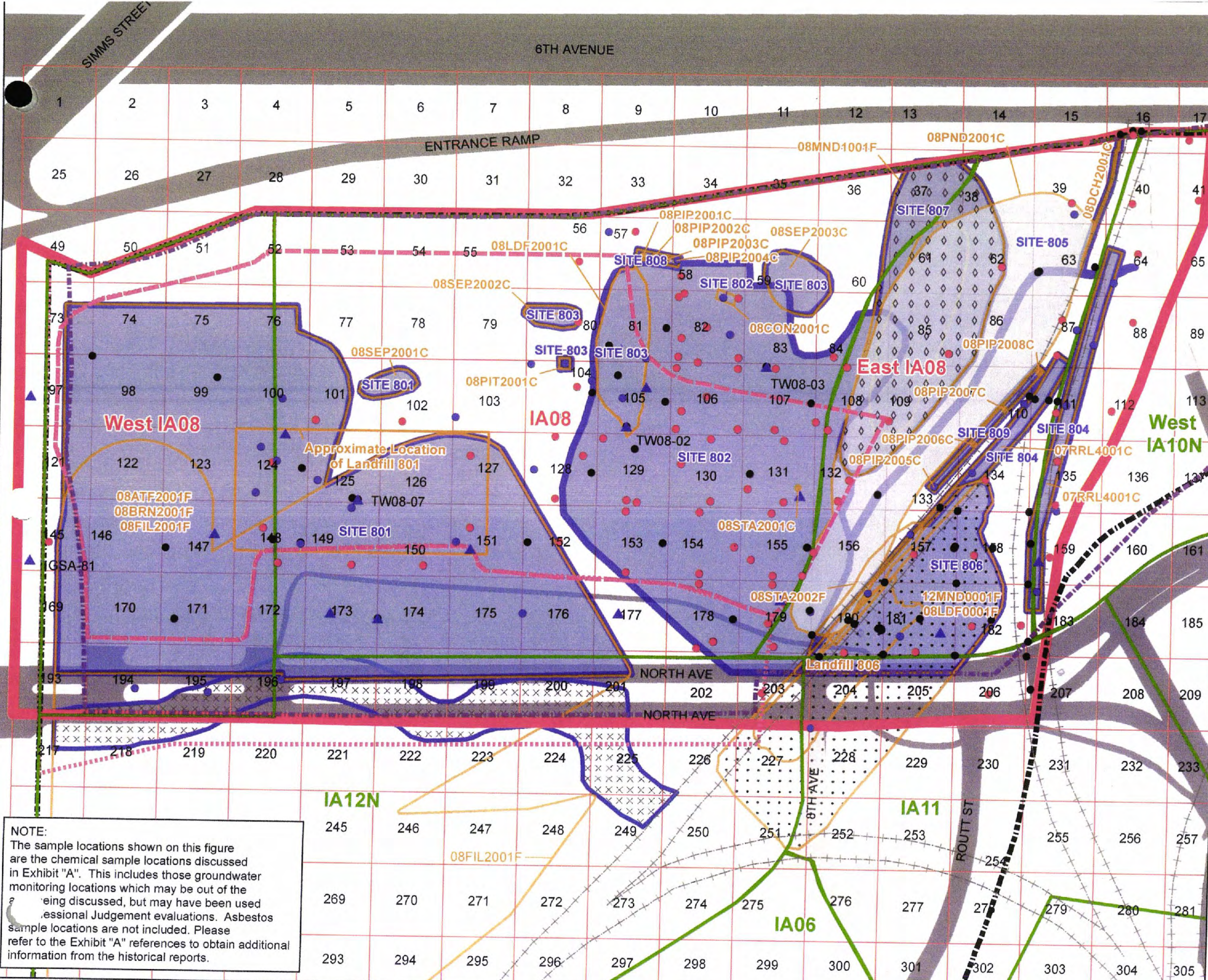
GMWSD - DENVER FEDERAL CENTER
LAKEWOOD COLORADO
SANITARY SEWER FORCE MAIN PLAN & PROFILE (2 OF 2)

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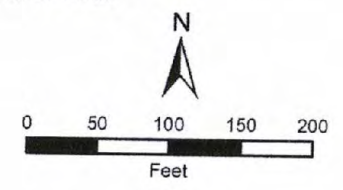
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PROJECT NO.
096412006
SHEET
75

ATTACHMENT B
INVESTIGATION AREA MAPS



- ### Legend
- Sample Location and Collection Date**
 - 2000 - 2003
 - 2004 - 2006
 - 2007 - Present
 - ▲ Monitoring Well
 - Former Railroad Investigative Boundary
 - Material Handling Plan Boundary
 - Approximate Cover Boundary
 - Maintain Existing Landfill Cover Area (see Material Handling Plan)
 - Property Transfer Boundary
 - Investigation Area
 - Area Discussed in Exhibit A
 - Feature (Hillside) - Site 807
 - Feature (Landfill) - Site 806
 - Feature (Pond) - Site 805
 - Feature
 - Sites
 - North Avenue
 - DFC Lots
 - Existing Building
 - Demolished Building
 - Present Road or Sidewalk
 - Historical Road



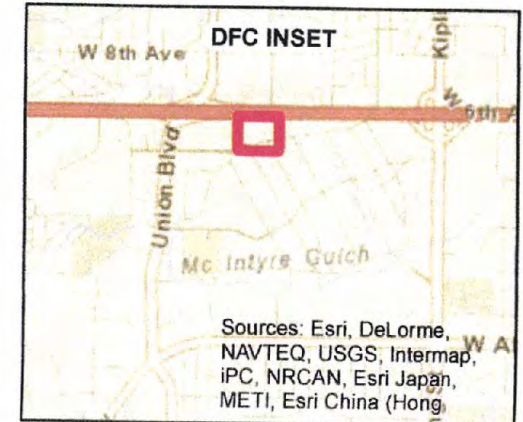
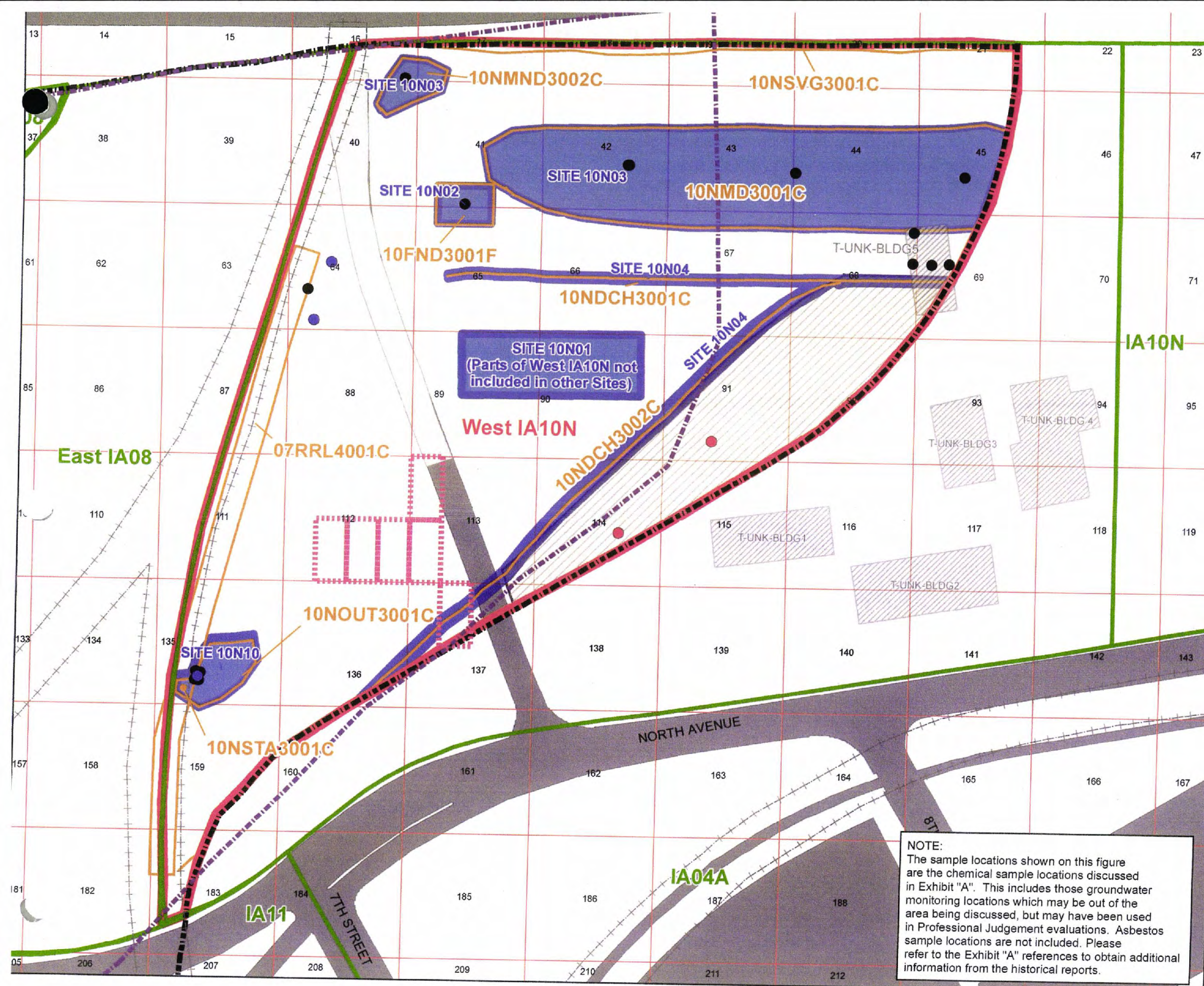
NOTE:
 The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used for professional judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.

CERCLA Reporting
 Denver Federal Center, Lakewood, Colorado

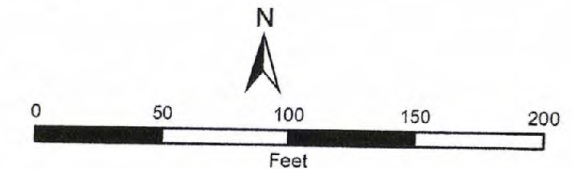
IA08 Features and Sample Points

Drawn by: M Johanson	Reviewed by: P Farquhar	Projection: North American Datum 1983
Date: 01/14/2014	Date: 03/24/2014	State Plane Colorado Central
Version:	Revision Date / Initials: 07/24/2014 MGJ	Units: Feet

Document Path: F:\Projects\Denver Federal Center\MapDocuments\CERCLA Reporting\IA08 Features and Sample Pts.mxd



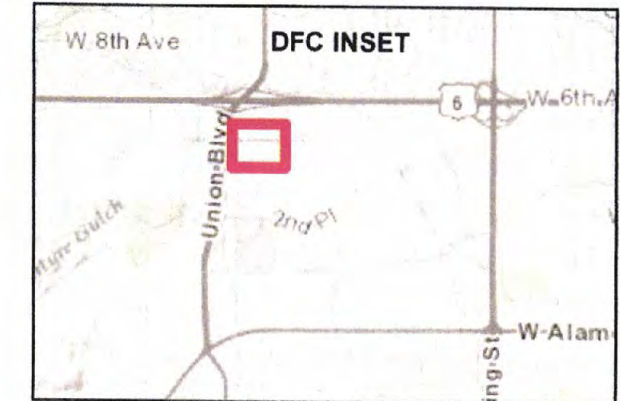
- ### Legend
- Sample Location and Collection Date**
- 2000 - 2003
 - 2004 - 2006
 - 2007 - Present
- Former Railroad Investigative Boundary
- Material Handling Plan Boundary
- Maintain Existing Landfill Cover Area (see Materials Handling Plan)
- Investigation
- Property Transfer Boundary
- Area Discussed in Exhibit A Table
- Features
- Sites
- UIP Laydown Yard
- DFC Lots
- Existing Building
- Demolished Building
- Present Road or Sidewalk
- Historical Road



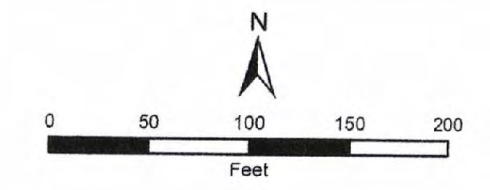
NOTE:
 The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used in Professional Judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.





CERCLA Reporting Denver Federal Center, Lakewood, Colorado		
West IA10 Features and Sample Points		
Drawn by: M Johanson	Reviewed by: P Farquhar	Projection: North American Datum 1983 State Plane Colorado Central EPS 5002 Units: Feet
Date: 01/14/2014	Date: 04/25/2014	
Version:	Revision Date / Initials: 07/24/2014 MGJ	



- ### Legend
- Sample Location and Collection Date**
- 2000 - 2003
 - 2004 - 2006
 - 2007 - Present
 - ▲ Monitoring Well
- Former Railroad Investigative Boundary
- Material Handling Plan Boundary
- Approximate Cover Boundary
- Maintain Existing Landfill Cover Area (See Material Handling Plan)
- Property Transfer Boundary
- Investigation Area
- Area Discussed in Exhibit A
- Feature
- Feature (Mound)
- Sites
- North Avenue Landfill
- DFC Lots
- Existing Building
- Demolished Building
- Present Road or Sidewalk
- Historical Road



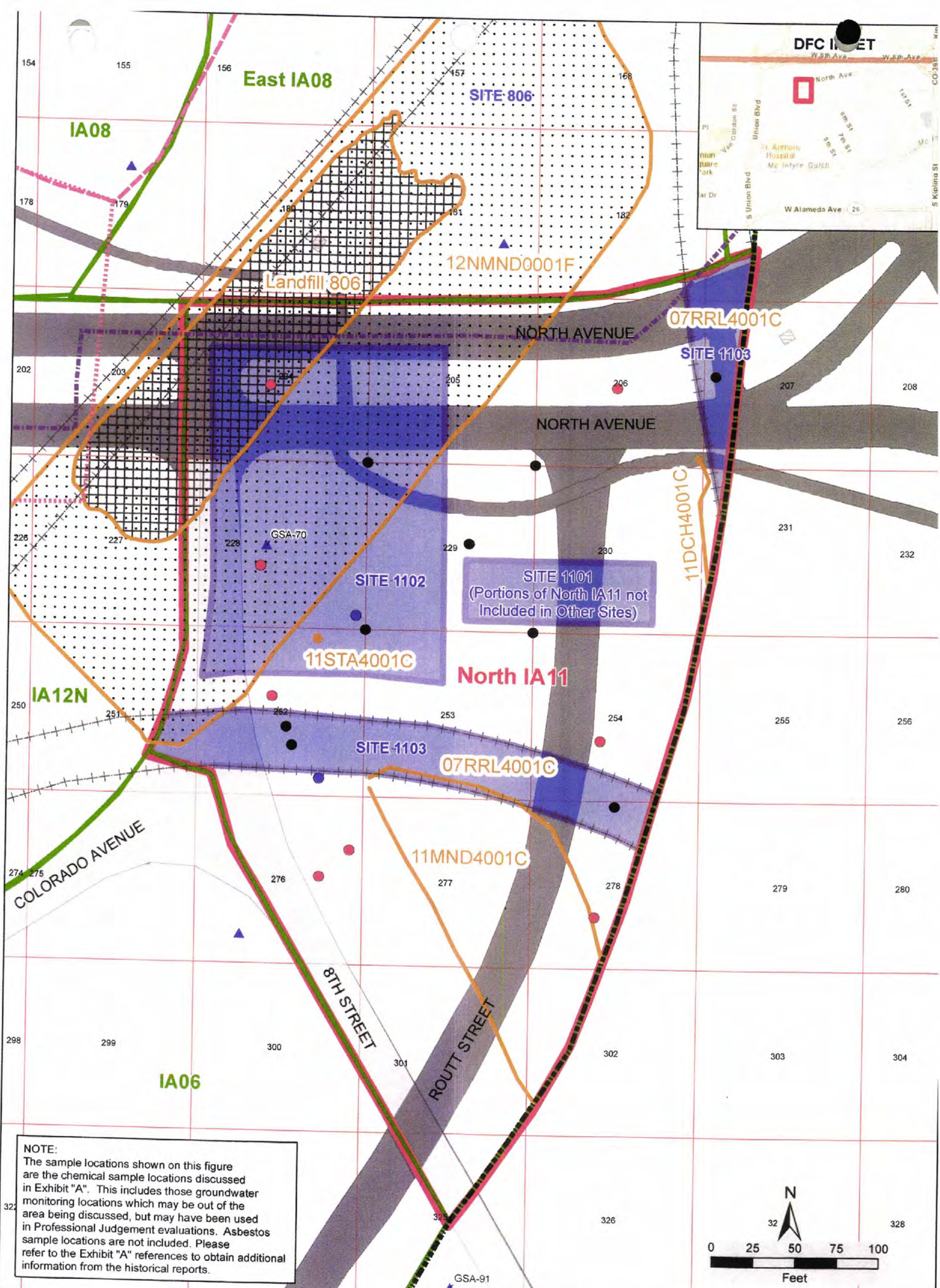
NOTE:
 The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used in Professional Judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.

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 Denver Federal Center, Lakewood, Colorado

IA12N Features and Sample Points

Drawn by: M Johanson	Reviewed by: P Farquhar	Projection North American Datum: 1983 State Plane Colorado Central FIPS 5002 Units: Feet
Date: 01/14/2014	Date: 04/14/2014	
Version:	Revision Date / Initials: 07/14/2014 MGJ	



NOTE:
 The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used in Professional Judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.

- Legend**
- Sample Location and Collection Date
 - 2000 - 2003
 - 2004 - 2006
 - 2007 - Present
 - ▲ Monitoring Well
 - Former Railroad Investigative Boundary (Site 1103)
 - Material Handling Plan Boundary
 - Approximate Cover Boundary
 - Maintain Existing Landscape Cover Area (See Material Handling Plan)
 - Property Transfer Boundary
 - Investigation Area
 - Area Discussed in Exhibit A
 - Feature
 - Feature (Landfill 806)
 - Feature (12NMND0001F)
 - Sites
 - DFC Lots
 - Existing Building
 - Demolished Building
 - Present Road or Sidewalk
 - Historical Road

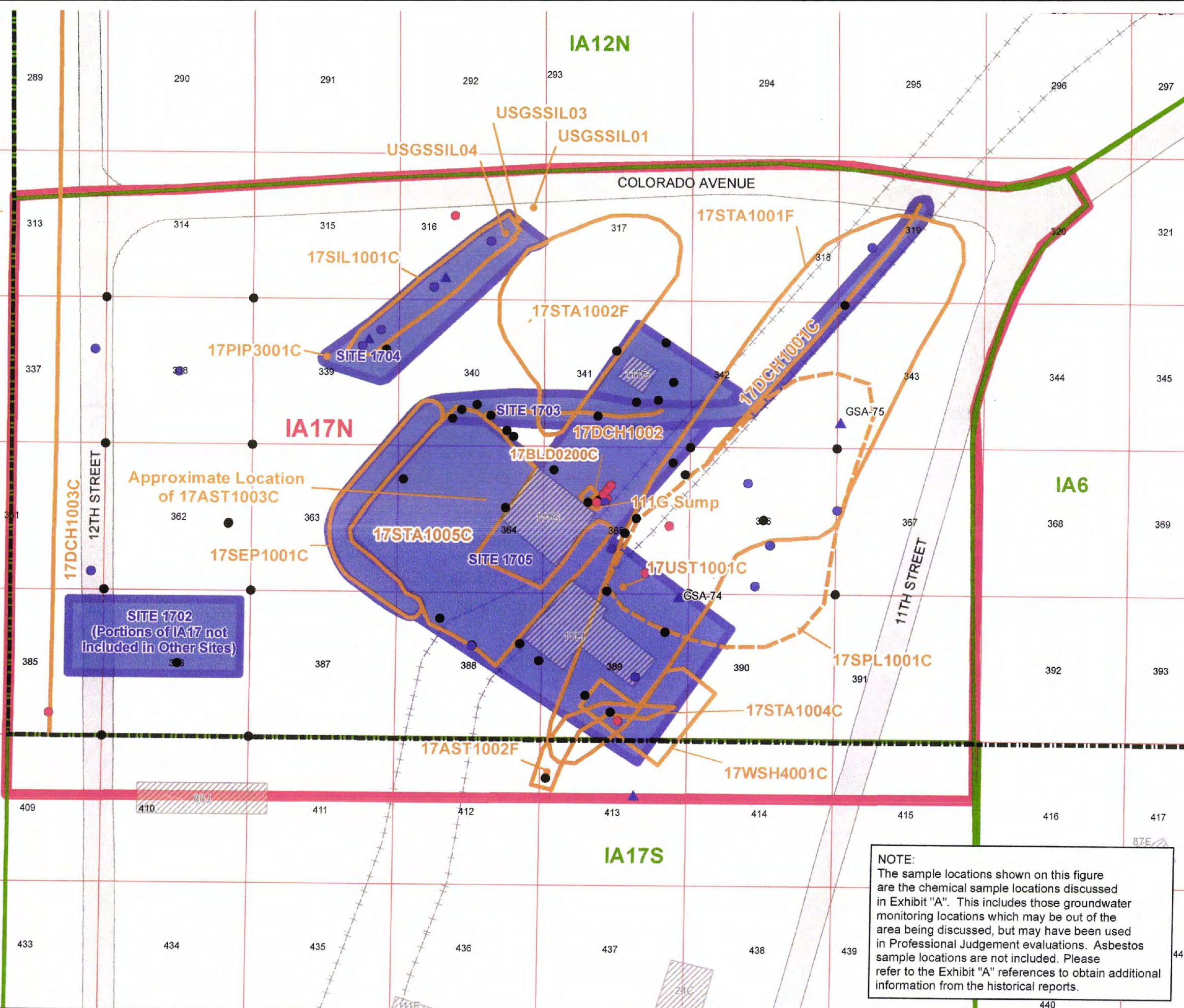


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North IA11 Features and Sample Points

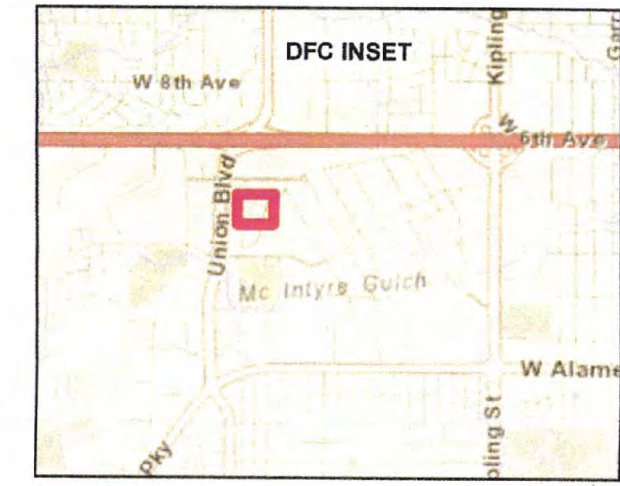
Drawn by: M Johanson	Reviewed by: P Farquhar
Date: 01/14/2014	Date: 04/25/2014
Version:	Revision Date / Initials: 07/24/2014 MGJ

Projection: North American Datum 1983
 State Plane Colorado Central
 FIPS 5002
 Units: Feet

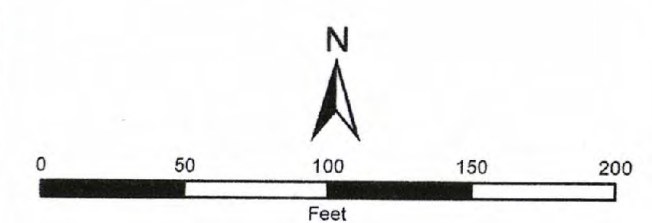




SITE 1702
(Portions of IA17 not
Included in Other Sites)

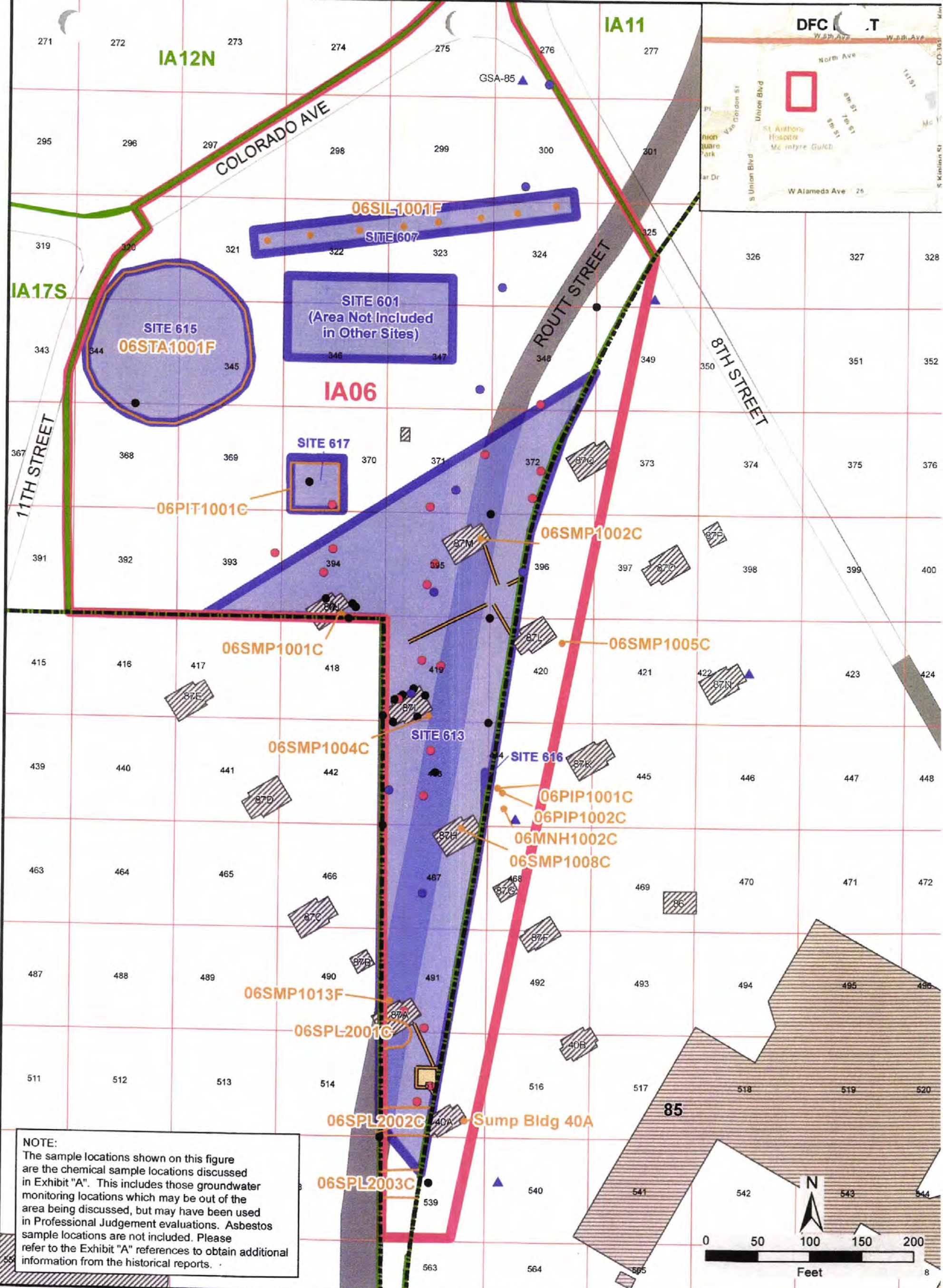
NOTE:
The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used in Professional Judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.



- Legend**
- Sample Location and Collection Date**
- 2000 - 2003
 - 2004 - 2006
 - 2007 - Present
 - ▲ Monitoring Well
 - Former Railroad Investigative Boundary
 - Property Transfer Boundary
 - Investigation Area
 - Area Discussed in Exhibit A
 - Features
 - Feature (17SPL1001C)
 - Sites
 - DFC Lots
 - Existing Building
 - Demolished Building
 - Historical Road



 			CERCLA Reporting Denver Federal Center, Lakewood, Colorado		
<h3>IA17 Features and Sample Points</h3>					
Drawn by: M Johanson Date: 01/14/2014 Version:	Reviewed by: P Farquhar Date: 04/14/2014 Revision Date / Initials: 07/24/2014 MGJ	Projection: North American Datum 1983 State Plane Colorado Central FIPS 5002 Units: Feet			



NOTE:
 The sample locations shown on this figure are the chemical sample locations discussed in Exhibit "A". This includes those groundwater monitoring locations which may be out of the area being discussed, but may have been used in Professional Judgement evaluations. Asbestos sample locations are not included. Please refer to the Exhibit "A" references to obtain additional information from the historical reports.

Legend

- | | |
|--|---|
| <p>Sample Location and Collection Date</p> <ul style="list-style-type: none"> ● 1996 - 2003 ● 2004 - 2006 ● 2007 - Present ▲ Monitoring Well ▭ Property Transfer Boundary ▭ Investigation Area ▭ Area Discussed in Exhibit A Table | <ul style="list-style-type: none"> ▭ Features ▭ Sites ▭ DFC Lots ▭ Existing Buried Steamline ▭ Existing Steam Vault ▭ Existing Building ▭ Demolished Building ▭ Present Road or Sidewalk ▭ Historical Road |
|--|---|



CERCLA Reporting
 Denver Federal Center, Lakewood, Colorado

IA06N Features and Sample Points

Drawn by: M Johanson	Reviewed by: P Farquhar	Projection: North American Datum 1983 State Plane Colorado Central FIPS 5002 Units: Feet
Date: 01/14/2014	Date: 04/14/2014	
Version:	Revision Date / Initials: 07/14/2014 MGJ	

ATTACHMENT C
CDPHE COMFORT LETTER



COLORADO

Department of Public
Health & Environment

November 13, 2023

Michael Yost
District Engineer
Green Mountain Water & Sanitation District
Michael.yost@greenmountainwater.org

RE: Request for a Comfort Letter regarding Northwest Corner Landfill Property - Formerly Denver Federal Center Property;
Southeast Corner of West 6th Avenue and Union Boulevard
Lakewood, Colorado 80228

Dear Mr. Yost,

The Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division (the Division) has prepared this “comfort” letter in support of the redevelopment of an approximately 59-acre parcel of land at the Denver Federal Center located generally at the southeast corner of the intersection between West 6th Avenue and Union Boulevard in Lakewood, Colorado (the Property). The Property was acquired by Lakewood Land Partners, LP (LLP) from the United States General Services Administration (GSA) in April 2023. To facilitate redevelopment, LLP divided the Property into a northern portion and a southern portion. The Division understands that Green Mountain Water and Sanitation District (GMWSD) has some concerns regarding the redevelopment of the Property.

The northern portion of the Property was formerly known as the Denver Federal Center Area 8 Landfill and consists of two subareas - the Landfill Cover Area (LCA) and the Maintain Existing Land Cover Area (MELCA). The LCA consists of a cover made of geofabric material beneath a one-foot-thick soil layer vegetated with grass, and the MELCA consists of existing concrete sidewalks, the pavement and center island of West 4th Avenue, road base topped with asphalt, or vegetation. The northern portion of the Property is subject to a Restrictive Notice that prohibits excavation and soil disturbance activities unless performed in accordance with the CDPHE-approved Materials Handling Plan (MHP). The Restrictive Notice also requires the owner of the LCA and MELCA portions of the Property to maintain the cover of these areas in accordance with a CDPHE-approved operation and maintenance plan (O&M Plan). In addition to the Restrictive Notice the northern portion of the Property is also subject to a Corrective Action Plan with the Division, which will be used to guide remediation and redevelopment in that area.

The southern portion of the Property is primarily vacant land covered in vegetation, along with concrete pads likely associated with former structures, remnants of asphalt roadways, various concrete debris, a soil mound, and a wooden deck area. The southern portion of the Property has undergone extensive investigation and remediation since the Compliance Order on Consent No. 97-07-18-01 between CDPHE and GSA became effective in 1997. CDPHE has issued No Further Action (NFA) letters for the areas shown on the attached figure. The depicted NFA areas had no or low levels of contamination or had been sufficiently remediated such that they do not pose an unacceptable risk to human health or the environment under an unrestricted/residential use scenario.



The Division understands that LLP proposes two phases of Property development. LLP's first phase of development includes only the southern portion of the Property along with utility installation activities within West 4th Avenue (which lies within the MELCA) and Routt Street. LLP's second phase of development will include the northern portion of the Property which will be developed at a determined later date.

Despite the NFA determinations that had already been received for the areas in the southern portion of the Property, the Vertex Companies, LLC (Vertex) performed a Supplemental Site Investigation (SSI) in the southern portion of the Property on behalf of LLP in August 2023. The results of the SSI confirmed that prior remedial efforts in the southern portion of the Property were effective.

The Division understands that LLP intends to submit a proposal to modify the Corrective Action Plan that currently covers only the northern portion of the Property. Despite the previous NFA determinations and the results of the SSI, the Division understands that LLP's proposed Corrective Action Plan modification will also extend the Corrective Action Plan to address the southern portion of the Property.

Including the southern portion of the Property in the CAP will allow the Division to guide the redevelopment of the entire Property, to ensure clean (unrestricted use) utility corridors, to initiate specific remedial activities if impacts are encountered, and to ensure that conditions at the Property remain protective of human health and the environment.

If you have any questions concerning this letter, please contact Zachary Grosso of my staff at zachary.grosso@state.co.us.

Sincerely,

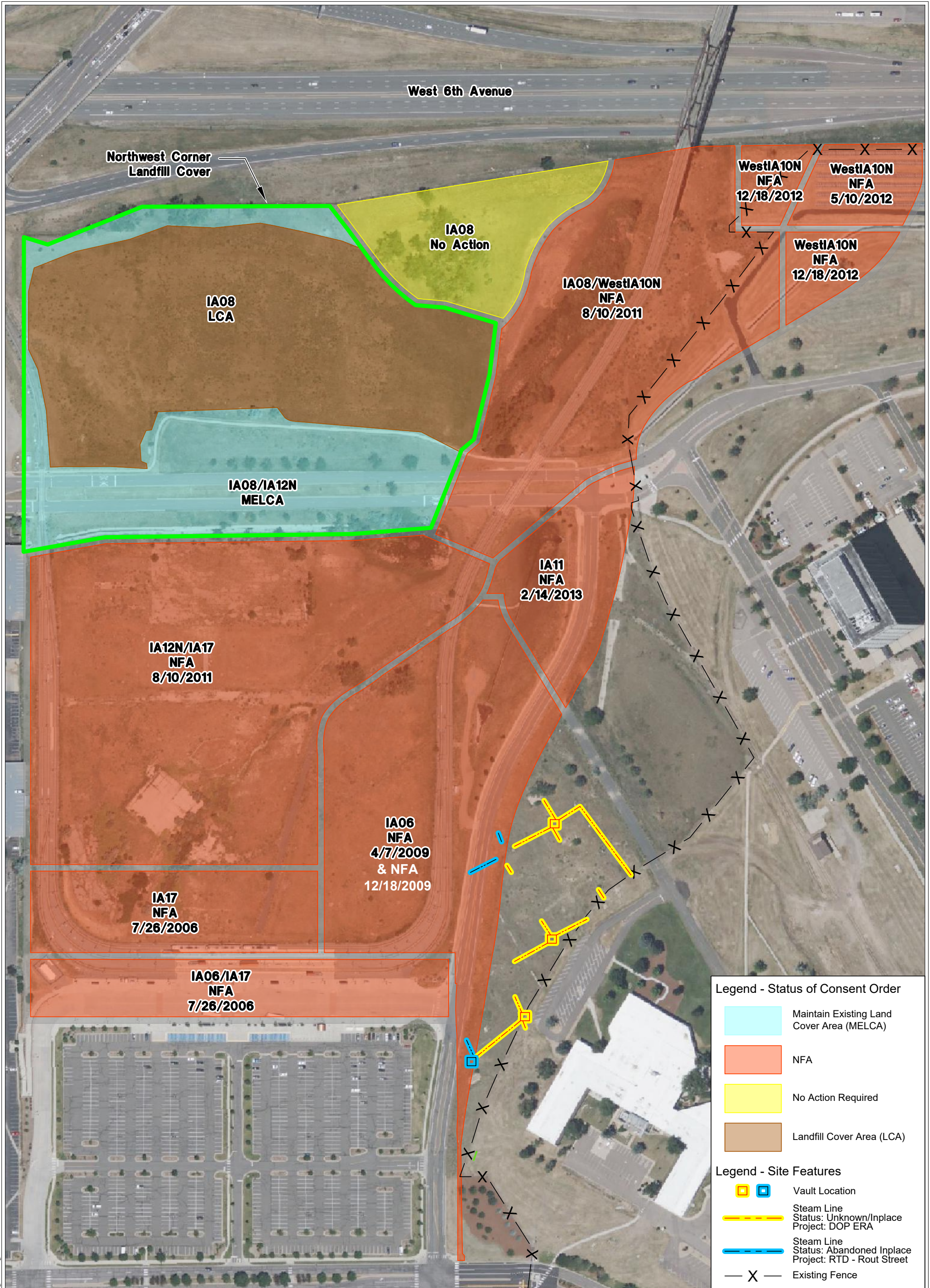
Richard Mruz

Digitally signed by Richard Mruz
Date: 2023.11.13 17:29:07 -07'00'

Richard Mruz, Jr.
Unit Leader
Hazardous Waste Corrective Action Unit
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment

Attachment: Environmental Status by Investigation Area Figure

EC: Zach Grosso, CDPHE-HMWMD
Lukas Staks, CO AGO
Scott Caldwell, LLP
Scott Waldenmyer, Vertex



LANDMARK
ENVIRONMENTAL, INC.



Landmark Environmental, Inc.
7881 Shaffer Parkway, Littleton, CO 80127

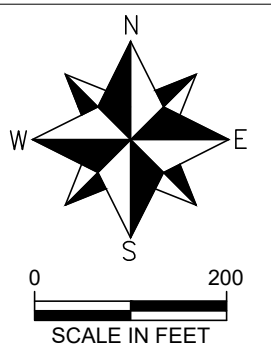


Figure 1

Environmental Status by Investigation Area

Denver Federal Center - Northwest Corner Lakewood, CO

Project #:	22089.001.001	Date:	10/21/2022
Drafted By:	J.G.M.		

M:\clients\landmark\22089-Den-Fed-Center\22089-DFC-Investigation.dwg 7/22/2019

ATTACHMENT D

SUPPLEMENTAL TRIHYDRO DOCUMENT REVIEW SUMMARIES

ATTACHMENT D. SUPPLEMENTAL SUMMARIES OF ADDITIONAL DOCUMENTS REVIEWED BY TRIHYDRO

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT - VERTEX (MARCH 2023)

Vertex conducted a Phase 1 ESA in accordance with E1527-21 and assessed for potential presence of ACM, LBP, radon, wetlands, floodplain, and historical oil/gas wells. The purpose of the ESA was to identify Recognized Environmental Conditions (RECs), controlled RECs (CRECs), and historical RECs (HRECs).

The northern area of the Property formerly known as DFC Area 8 Landfill, also known as the NW Corner Landfill, operated from 1954 to 1963. Landfill was used for disposal of debris and construction related fill from other locations within DFC. Landfill material thickness from 2 to 16 ft Construction related fill consisted of soil, rock, railroad ballast, concrete and asphalt. Debris included scrap metal, brick, ACM contaminated soil, laboratory waste, insulation, oily soil, oily waste, coal residue, cinder material, ash/burned material. Methane is not noted as a concern in previous environmental reports.

Previous operations at the southern area of the Property associated with the DOP from 1941-1945 included a powder canning area, storage area, a primer production area, and bunkers. The southern area remained vacant until the mid-1950's when the DFC was constructed. Late 1950's railroad tracks appeared on eastern side of site. Early 1970's a road was constructed in central area from east to west and additional structures and drives built. The site remained unchanged until the early 1990's when parking lots were built in the northwest corner. No development until late 2010's when RTD light rail track was constructed along southwestern and eastern border of site. A solar farm appeared in the northeastern corner. Structures on the southern area and parking lots in northwest corner were demolished by 2011. Property remained vacant to present.

Previous investigations showed the Property was broken up into various Investigation Areas (IAs). Northern Area: IA08 (MELCA and LCA), IA10. Southern Area: IA06 (Former DOP Primer Production Area), IA12N (Former DOP Storage Area), and IA17 (Former DOP powder canning area). The main chemicals of concern identified were PAHs, lead, pesticides, and ACM and ACM soil. Remediation activities included the excavation and disposal of site-wide surficial impacted soils and isolated areas of impacted subsurface soils and was considered sufficient by CDPHE to issue No Further Action (NFA) letter for the various IAs. Some residual contamination was left in place and covered with a clean cap layer to prevent exposure from impacted soils. Institutional controls were placed on Northwest Corner Landfill Cover, and Property has a use restriction for groundwater that includes groundwater to a depth of 100-ft bgs due to PAH contamination. The institutional controls for the Property are considered CRECs.

Northern site IA10N: COCs were asbestos, metals, PAHs, SVOCs. Remediation included excavation and off-site disposal of surface and some limited subsurface contaminated soil. A six-inch vegetative cover was placed over IA10N. CDPHE issued NFA for IA10N on 12/18/2012.

Southern Sites IA6 and IA17S: COCs were PAHs, organochloride pesticides, lead, and ACM. Investigations identified PAHs, pesticides, lead, and ACM above screening levels. Site also included trough of fluorspar previously used as a strategic stockpile that was remediated and removed. Surface soil was excavated to approximately 0.5-ft depth with isolated areas of excavation to a depth of 21 ft bgs for off-site disposal. North IA6 had approximately 31,092 tons of soil removed and disposed at licensed facility. Confirmation samples indicated remaining soils below screening levels. Former bunkers in IA6 contained ACM. ACM abatement was conducted in 2004. CDPHE issued NFA's for IA6 and IA17S in 7/27/2006, 4/7/2009, and 8/10/2011.

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The northern RTD Northern half expansion areas as well as IA7, IA8, East IA8, West 10N, North IA11, IA12, and IA17N. Remediation included:

- Removal of construction debris with friable ACM at Site 806 landfill (located within North IA11).
- Removal of coal layers within IA17N and southeast of Site 806 landfill along North Ave.
- Removal of approx. 33,662 tons of contaminated soils considered RCRA hazardous waste due to TCLP lead results within Site 806 landfill was excavated from the top four feet and disposed off-site.
- Removal of ACM in soil from areas south of the southern end of the concrete line stormwater ditch south of North Ave.
- Removal of PAH and metal impacted soil.
- Former tunnel within Site 803 Landfill (northeast corner of IA08-LCA) was evaluated to 30-ft to determine if waste deposition occurred during backfilling of tunnel. Tunnel not encountered. One temp well se and groundwater sampled and found below applicable regulatory levels for VOC's PAHs, dioxin/furans, and pesticides.

No RECs identified with respect to current or past use of adjoining properties. The Property was not identified on regulatory databases reviewed.

The LCA and MELCA operates under a CDPHE approved Materials Handling Plan and O&M plan. LCA and MELCA require inspections twice per year and report. Any soil excavated must be managed to Materials Handling Plan.

No RECs, CRECs, or HRECs identified except for the Northwest Corner Landfill (LCA and MELCA) where; soil disturbing activities are restricted, requires regular monitoring and maintenance of corrective measures, and has a use restriction for groundwater due to PAH contamination.

The MELCA and LCA areas are considered CRECs, Institutional controls considered CRECs.

Business environmental risks identified with management and handling requirements at the MELCA and LCA areas of the northwest corner landfill.

Based on June 2006 RCRA Facility Investigation of Denver Federal Center Northern RTD Expansion Area, groundwater is expected to flow east/northeast. Groundwater is expected to be encountered within 6.5 to 32 ft bgs.

Additionally, groundwater beneath the entire Property was restricted to the following: 1) no groundwater beneath the Property from ground surface to a depth of 100 feet below ground surface can be withdrawn for any purpose with the exception of authorized cases that include remedial decision document or environmental sampling plan approved by CDPHE; 2) nothing in the prior statement should prohibit the installation or use of monitoring or remedial wells; 3) nothing in the prior statement should prohibit the extraction/management of groundwater from construction dewatering which is conducted in compliance with applicable regulations for wastewater discharge; 4) if the Property is owned by the federal government, the owner should conduct construction dewatering in

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accordance with the US EPA Clean Water Act National Pollutant Discharge Elimination System (NPDES) requirements for the permit program; and 5) if the Property is not owned by the federal government, the owner should obtain a construction dewatering permit in accordance with the Colorado Water Quality Control Act before dewatering activities occur.

Trihydro is in general agreement with the findings of the Phase 1 ESA.

EVALUATION OF ENVIRONMENTAL ISSUES AND REQUIREMENTS SURROUNDING THE DEVELOPMENT OF THE DENVER FEDERAL CENTER NORTHWEST PROPERTY – LANDMARK ENVIRONMENTAL (OCTOBER 2022)

Landmark prepared a report for Forge Partners evaluating the environmental issues with the development. Landmark determined that based on available information, the remaining environmental concerns on the South/East Parcel generally consisted of but are not limited to, low-level metals, PAHs, and asbestos in soil that do not require corrective action by CDPHE. Buried asbestos-containing pipes remain on the southeastern side of the Property that would require abatement/removal if encountered. An NFA has been issued for the South/East Parcel for all IAs. GW has been determined not to require remedial action and has received NFA approval; however, an institutional control restricting GW use applies to the entire Property. PAHs and/or metals potentially remain in GW in some areas, based on institutional control. Vinyl chloride was remediated from the southeastern corner of the South/East Parcel; however, documentation of the post remediation GW quality for that area should be located and reviewed to confirm vinyl chloride has been remediated. Former DOP rail lines remain buried in several areas of the South/East Parcel. The potential exists to encounter additional environmental concerns during construction.

Based on available information, the Northwest Parcel has been given regulatory approval and framework for maintenance in its current state and does not require remediation based on the available information; however, it is possible to conduct partial remediation, complete remediation, or management of contamination for development with legally required approval from CDPHE. Building on the MELCA or LCA for residential use or other sensitive uses will require planning for material management and health and safety in strategic combination with development plans, and the potential to encounter previously unidentified hazards should be considered.

Any disturbance of the soil and waste beneath the MELCA and LCA must follow special materials handling procedures as described in the Northwest Corner Landfill Cover MHP, which is a companion to the O&M Plan. Alternatively, these areas, or portion(s) thereof, could be remediated to meet residential/unrestricted use criteria. All remediation activities would need to be proposed in a plan and submitted to the CDPHE for review and approval before implementation. The owner of the Northwest Parcel is required to submit a CAP Application (at closing) along with a site-specific health & safety plan (HASP). The existing MHP and O&M Plan will be agreed to with the CAP submittal unless a revised MHP and O&M Plan is developed and approved beforehand. Landfill cover maintenance, inspection, and reporting, as described in the O&M, are required. Disturbances of the landfill cover must only be conducted according to the existing MHP or an approved MHP. APEN requirements should be evaluated based on planned excavation and construction activities. It is expected that contaminated waste and/or soil will be encountered during any soil disturbing activities in the Northwest Parcel, particularly for excavations for utility corridors, foundations, and below-land surface building structures. This material is considered solid waste and must be managed accordingly. CDPHE has determined that excavated soil and waste

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from within the footprint of the Northwest Parcel area may be reused onsite within the existing footprint of the landfill cover if the reuse activity does not adversely affect human health or GW and it is properly covered after relocation. Site development design should consider the specific locations of various waste materials to help optimize subsurface excavations to minimize waste disturbance.

Trihydro generally agrees with the findings of the Evaluation report.

GSA INVITATION FOR BID FOR SALE OF GOVERNMENT REAL PROPERTY FEDERAL CENTER STATION 59+/- ACRES AT DENVER FEDERAL CENTER (SEPTEMBER 2022)

The document outlined the invitation to bid for the sale of the Property. The document presented a legal description of the Property, conditions and terms of the sale, and condition of the property which included the environmental covenants, and the potential presence of contamination such as asbestos, pesticides, and other contaminants.

SECOND SEMIANNUAL 2022 INSPECTION, NORTHWEST CORNER LANDFILL COVER, LANDFILL COVER AREA & MAINTAIN EXISTING LAND COVER AREA, DENVER FEDERAL CENTER, COLORADO, PREPARED FOR PINYON, PREPARED BY DOTY & ASSOCIATES, LLC, (SEPTEMBER 2022).

The document presents the results of the second semi-annual 2022 Inspection of the LCA and MELCA. The document summarizes history of the site and wastes buried at landfills and asbestos found in surficial soils mostly in the southeastern portion of the site. It presents a summary of the cover construction and construction of the run-on issue with RTD. Semi-annual inspection and maintenance are required as detailed in the sites O&M Plan.

Conclusions presented in the inspection included the following:

- Overall, the LCA and MELCA are in good condition. Items of potential concern identified in this and earlier inspections are as follows:
 - The ramp-like area in Lot 151-8 leading up from the MELCA onto the cover is stable and is not of concern.
 - Exposed orange fabric in Lot 172-8 is the outside edge of the taper zone and the area also appears stable.
 - Burrowing around the two curbed stormwater inlets in Lot 170-3 and Lot 172-8 and north of the cover does not appear to be a concern.
 - Minor surficial sloughing or slumping outside the eastern limit of the cover appears stable. Conditions should be monitored in future inspections.
 - The concrete curbed inlet at the terminus of the RTD stormwater ditch appears to be functioning in satisfactory manner. Conditions at and downstream of the inlet are currently stable but should continue to be monitored.
 - The vegetation in the vehicular tracks on the cover near its eastern extent has rebounded. The tracks do not appear to have been used since the last inspection.

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- Cover damage is minimal and conditions are improving. Vehicular traffic on the cover should be actively discouraged.

Trihydro has no comments in the semi-annual inspection report.

IA08 LANDFILL DRAINAGE REPAIR IMPLEMENTATION (JANUARY 2002)

The document presents the details of the drainage repair implementation at the IA08 landfill. Repair work was required due to problems caused by surface water erosion. Repairs included installation of a retaining wall, landfill cover repair, and revegetation.

Trihydro has no comments on the report.

LANDFILL DRAINAGE REPAIR WORK PLAN (OCTOBER 2019)

The work plan document outlines proposed work to repair the IA08 landfill due to drainage issues and erosion at the landfill primarily on the west side of the landfill. The work plan presents solutions such as removing and replacing inlet and regrading the area to improve stormwater flows, and constructing an earthen berm to protect the landfill cap.

Trihydro has no comments on the report.

NOTICE OF ENVIRONMENTAL USE RESTRICTION, FOR THE UNITED STATES OF AMERICA, ACTING BY AND THROUGH ADMINISTRATOR OF GENERAL SERVICES (GSA), APPROVED BY CDPHE HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION, (APRIL 2017)

This document is the registered legal notice on file with Jefferson County concerning the CDPHE approved varying land use restrictions at the entire Site, LCA, and MELCA. Use Restrictions are as follows:

1. Restrictions on Use of Groundwater.
 - No groundwater beneath the Property (the entire 59-acre Parcel) from ground surface to a depth of 100 ft bgs may be withdrawn for any purpose, except as authorized in a remedial decision document or environmental sampling plan approved by the Department.
 - Nothing in the preceding shall prohibit the installation or use of monitoring or remedial wells as authorized in a remedial decision document or environmental sampling plan approved by the Department.
 - Nothing in the preceding shall prohibit groundwater extraction/management arising from construction dewatering which is conducted in compliance with applicable wastewater discharge regulations.
 - So long as the Property is not owned by the federal government, Owner shall secure a Construction Dewatering Permit in accordance with the Colorado Water Quality Control Act prior to any dewatering activities. Any person applying for a construction dewatering permit on the Property must notify the Department's Water Quality Control Division that the groundwater is contaminated and that a restrictive notice has been imposed.

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2. Protection of the Integrity of the Corrective Measure

No excavation, grazing, drilling, grading, digging, tilling or any other soil disturbing activity is permitted within the NW landfill Cover as depicted in Attachment B (LCA and MELCA area) and described in Attachment C unless conducted in accordance with:

- The most recent version of the Department approved Northwest Corner Landfill Cover Materials Handling Plan, which is incorporated by reference as if set forth in full herein, or
- A remedial decision document or environmental sampling plan that has been approved by the Department

3. Inspection and maintenance of the Corrective Measure

- Inspection and maintenance of the Corrective Measure (applies to the LCA and MELCA only)
- The Owner maintains an affirmative obligation to monitor and maintain the corrective measures in the NW Corner Landfill (LCA and MELCA) in accordance with the Northwest Corner Landfill Cover Operations & Maintenance Plan (“NW Corner Landfill Cover O&M Plan”).

INSTITUTIONAL CONTROLS RSNOT00029 - CDPHE INSTITUTIONAL CONTROL DATABASE SUMMARY (APRIL 2017)

This document is a two-page summary from the CDPHE database for Institutional Controls. This document lists the restrictions in place for the NW Landfill to include the LCA and MELCA only. It lists the groundwater use restriction, excavation limitations, and O&M requirements. The document does not address the groundwater use restriction for the remainder of the Property stipulated in the Notice of Environmental Use Restriction document listed previously.

DRAFT CORRECTIVE ACTION PLAN APPLICATION FOR POST CORRECTIVE MEASURES OPERATION AND MAINTENANCE OF THE NORTHWEST CORNER LANDFILL COVER FORMERLY PART OF DENVER FEDERAL CENTER, LAKEWOOD COLORADO, (2017)

Preparer of this document is unknown and specific date is not specified. This Corrective Action Plan (CAP) application applies to the ‘NW Corner Landfill Cover’ that applies to the LCA and MELCA.

CORRECTIVE MEASURES COMPLETION REPORT (CMCR) FOR INVESTIGATION AREA 8 DATED JANUARY 2016; GENERAL SERVICES ADMINISTRATION, DENVER FEDERAL CENTER, LAKEWOOD, CO, PREPARED FOR GSA REGION 8, DFC ENVIRONMENTAL MANAGER, PREPARED BY CDPHE, DATED JANUARY 6, 2016.

This document prepared by ERO Resources details the Corrective Measures conducted for the IA8 landfill. The CMCR details the installation activities if the landfill cap constructed, quality control, and final extent and thickness achieved.

DRAFT FINAL SEMI-ANNUAL REPORT, SITE-WIDE LONG-TERM GROUNDWATER MONITORING, SAMPLING EVENTS, NOVEMBER 2012 AND FEBRUARY 2013 (OCTOBER 2013)

This document prepared by Amec Environment and Infrastructure details the site wide long-term groundwater monitoring for the full DFC site in 2012 and 2013. The monitoring well network used in this program included

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wells throughout the greater DFC site, though none of the wells were located within the Property boundary. Closest wells to the Property were near the downgradient side of the Property and were wells TW09-05, GSA-91, GSA-77, and GSA-84. The report describes groundwater impacts consisting of chlorinated solvent-related contamination located downgradient over 2,000 ft of the eastern Property boundary except PAH detections in groundwater in well GSA-91. Groundwater gradients are shown predominately to an east-northeast flow direction. Some testing for 1,4-dioxane in groundwater was done as part of the monitoring program and shown elevated detections in the main contamination plume located approximately 2,000 ft downgradient of the Property. None of the nearby wells to the Property were reported with 1,4-dioxane.

FINAL SOIL REMOVAL REPORT, IA10S CORRECTIVE MEASURES WORK PLAN ADDENDUM 2, DENVER FEDERAL CENTER (DECEMBER 2012)

This document prepared by ECC details the soil removal within the North Mound located on the West IA10N portion of the Property. The soil removal was conducted to remove and dispose of asbestos from this location. Approximately 205 tons of soil was excavated and disposed off-site. Approximately 2,383 cubic yards of soil was re-graded throughout the site. Visual and laboratory results verified that no asbestos was present at the site.

OTHER DOCUMENTS REVIEWED BY TRIHYDRO

The following provides a list of additional documents reviewed by Trihydro as part of our evaluation of the Property:

- Phase I Environmental Site Assessment for Landfill Development Project, West 6th Avenue & Union Boulevard, Lakewood, CO 80228; Prepared for Pilot Real Estate Group; Prepared by Langan Engineering & Environmental Services, Inc., (Langan), dated November 11, 2022.
- Materials Handling Plan, Northwest Corner Landfill Cover, Denver Federal Center, Lakewood, Colorado, Prepared for The General Services Administration (GSA), Prepared by Environmental Chemical Corporation (ECC), dated August 2013, revised March 2017.
- Final Addendum Corrective Measures Work Plan, Northern RTD North Half Expansion Areas, IA7, IA8, West IA10N, North IA11, IA12N, and IA17N, Materials Handling Plan, Denver Federal Center, Prepared for The General Services Administration (GSA), Prepared by Environmental Chemical Corporation (ECC), dated September 2013.
- Final Addendum Corrective Measures Work Plan, Northern RTD North Half Expansion Areas, IA7, IA8, West IA10N, North IA11, IA12N, and IA17N, Operations and Maintenance Plan, Denver Federal Center, Prepared for The General Services Administration (GSA), Prepared by Environmental Chemical Corporation (ECC), dated September 2013.
- Final Closure Report, Implement Corrective Measures Work Plan, Northern RTD Northern Half Expansion Areas, Investigation Areas IA 11, IA 12, and IA 17N, Denver Federal Center, Denver, Colorado, prepared for GSA, prepared by ECC, dated July 2011.
- Northern RTD North Half Expansion Areas, IA 11, IA 12N, IA 17 N Petition for No Further Action, Denver Federal Center, prepared for GSA Region 8, DFC Environmental Manager, prepared by CDPHE, dated August 10, 2011.

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- Investigation Area 16 – Sitewide Groundwater, Pentachlorophenol Letter Report, Document No 97GENS03016-38, Denver Federal Center, prepared for US General Services Administration (GSA) Region 8, DFC Environmental Manager, prepared by Colorado Department of Public Health and Environment (CDPHE), dated April 13, 2009.
- Northern RTD Transfer Area Investigation Area North IA6, Draft Final Closure Report Addendum and Comment Response Document, Denver Federal Center, Jefferson County, prepared for US GSA Region 8, DFC Environmental Manager, prepared by CDPHE, dated April 7, 2009.
- Draft Final Corrective Measures Work Plan, Northern RTD Expansion Areas, Investigation Areas North IA6 and IA17S, Denver Federal Center, prepared for General Services Administration (GSA), Prepared by Environmental Chemical Corporation (ECC), dated August 2005.
- Draft Final – CERCLA Reporting Tables and Maps for Investigation Areas North IA06, West IA08, East IA08, West IA10N, North IA11, IA12N and IA17N”.