RESOLUTION NO. 3896

A RESOLUTION ADOPTING FINDINGS OF FACT AND APPROVING SITE PLAN REVIEW FOR CHS, INC. FOR THE CONSTRUCTION OF A COMMERCIAL BUILDING ON LOT 1 BLOCK 1 OF THE BABER MEADOWS SUBDIVISION.

WHEREAS, CHS, Inc. has requested that the City of Miles City approve the site plan review for a new commercial building to be built on Lot 1 Block 1 of the Baber Meadows Subdivision, Custer County, Montana;

AND WHEREAS, a public hearing was held before the Planning Board on March 16, 2016, and the Planning Board has recommended that the City Council approve the site plan with certain conditions;

AND WHEREAS, the City Council is the final reviewing authority for site plan approval pursuant to Section 24-96 of the Code of Ordinances of the City of Miles City;

NOW THEREFORE BE IT RESOLVED by the City Council of Miles City, Montana, as follows:

1. The City Council of the City of Miles City does hereby adopt the "City Council Staff Report SPR-2016-02," attached hereto as Exhibit "A," as findings of fact; and
2. Based on the findings of fact, the City Council of the City of Miles City hereby **APPROVES WITH CONDITIONS** the site plan submitted by CHS, Inc. Said conditions are set forth in Exhibit "A."

SAID RESOLUTION FINALLY PASSED AND ADOPTED BY A DULY CONSTITUTED QUORUM OF THE CITY COUNCIL OF THE CITY OF MILES CITY, MONTANA, AT A DULY CALLED MEETING THIS 22ND DAY OF MARCH, 2016.

John Hollowell, Mayor

ATTEST:

Lorrie Pearce, City Clerk

CITY OF MILES CITY
MILES CITY PLANNING BOARD
P.O. BOX 910
MILES CITY, MT 59301

March 16, 2016

Mayor John Hollowell
City Council Members

RE: Site Plan Review for CHS, Inc. Zip Trip, File # SPR-2016-02

The City Planning Board has reviewed the proposed development of the CHS Inc. Zip Trip Truck Stop and Convenience Store and recommends to the City Council that the proposal be approved subject to the following conditions:

Prior to occupancy, the developer shall demonstrate compliance with the following conditions:

- Any modification to the approved application and plans that affect building codes, zoning regulations or public facilities shall require additional review by the City of Miles City.
- The owner shall comply with all applicable codes in the Miles City Code of Ordinances Section 15 concerning Public Nuisances.
- The owner shall receive DEQ approvals prior to start of construction.
- The owner or owner's representative shall apply for a building permit prior to construction.
- The water, sewer and other utilities connections shall be approved by the applicable service providers prior to construction.
- Fire hydrants must be Mueller A-2360 series MJ. All fasteners will be corten material or equivalent. A flushing device for the 8" main on the north end of property is required to enable flushing of the line. Applicant must provide detailed drawings for the air/water station to the Public Utility Director.
- The owner shall submit a letter of review from the Miles City Fire Department indicating adequate fire protection plans have been developed and the department can adequately respond to emergencies at the facility. Any fire department requirements, such as fire hydrants, access plans/improvements, sprinkler systems, firewalls, and other fire code requirements shall be approved by the fire department prior to occupancy.
- A Certificate of Occupancy is contingent upon the application meeting all conditions of approval.

Respectfully,

Roxanna Brush

Roxanna Brush, President
Miles City Planning Board

APPROVALS

By my signature below, I have reviewed and approve* of the site plan submitted by *Sanderson Stewart* for construction of the Cenex Zip Trip #75, described as Lot 1 of the Baber Meadows Subdivision on U.S. Highway 59 in Miles City, MT, south of the New Hunan Restaurant.

Director of Public Works Scott Gray Date 2-23-16
Comments or Conditions: The zoning is General Commercial and is compliant.

Director of Public Utilities [illegible] Date 3-9-16.
Comments or Conditions: main line extension from Southgate to be approved by City Council. 3-22-16 Submit to Council. Hydrants will be A-2360 Series MJ. All bolts will be Corten or equal. Need more information on air/water station. Need some sort of flushing device on North End of 8" main to flush line. Mueller Hydrant.

Floodplain Administrator Construction is outside of the flood plain. Date 2/17/16 SAM
Comments or Conditions: No issues.

Fire Chief - Ryan Smith Date 2-19-16
Comments or Conditions: Need to review sprinkler plans and all documentation reviewed pending final walk thru after completion of const. see pg 2.

Historic Preservation Officer New construction outside of any historic Date 2/17/2016 CLN
Comments or Conditions: district. No concerns.

Planning Department Proposal appears to comply w/ all City Date 3/17/16
Comments or Conditions: Ordinances.

Health and Sanitation Date
Comments or Conditions:

Building Official [illegible] Date 3/17/16
Comments or Conditions:
Site plans are O.K

✗ **Police Department** [illegible] Date 2/22/16
Comments or Conditions: No issues that I see

As-Built Drawings Received on: _____

*With any conditions as noted

City Council Staff Report SPR-2016-02 Site Plan Review
Cenex (CHS) Zip Trip
Meeting Date: March 22, 2016

PROJECT SUMMARY:

Sanderson Stewart, on behalf of the CHS Inc., has submitted a Site Plan Review application for the construction of a 7,520 sq. ft. commercial building for use as a retail convenience store and fuel stop. The property is located at 1815 S. Haynes Ave. The legal description is S1/2NE1/4 of Sec 3, T07N, R47E, Block 1, Lot 1 of the Baber Meadows Subdivision. See attached maps for location and site plans.

Significant dates and review items are noted below:

- The applicant has submitted all the required information per 24-96(e).
- The applicant was notified that the application was deemed complete on February 3, 2016.
- A Public Hearing before the Planning Board was held March 16, 2016 at 6:00 PM in the City Hall Conference Room. Noticing requirements in 24-96(f)(6) were satisfied.

PUBLIC COMMENT

Opponents:

Dwayne Rude questioned the relevance of the Site Plan Review and public hearing since work has already started on the site. He also expressed concerns about the water pressure/supply for the Southgate residential area with a new business utilizing the same water source.

Proponents:

CHS employees support the project and added that 14 new jobs with higher than average wages are being created in Miles City.

REVIEW CRITERIA

The project meets the review criteria in 24-96(g). The following information may be considered as Findings of Fact.

- The proposed Zip Trip site as it is currently designed provides for excellent site circulation. The dedicated truck parking area is located at the rear of the site away from the convenience store building and the fuel pumps. The site is designed with wide driving aisles and provides a loop around the truck parking areas. Sanderson Stewart performed a traffic impact study for the site and concluded the proposed site layout is satisfactory relative to local and National design standards.
- Emergency access and fire prevention measures have been reviewed by the Miles City Fire Department. Two fire hydrants are to be located on the property. The department will review master plans and all documentation pending final walk thru after completion of construction. The project seems to meet all other codes and ordinances pending final inspection.
- Two new ingress/egress points from Hwy 59 S have been approved by MT Dept of Transportation. Both approaches provide access to the site; the northernmost approach provides best access to the diesel fuel island and truck parking. Ample area is provided for on-site circulation of traffic, including emergency vehicles. The Traffic Impact Study does not anticipate traffic queuing or Level of Service (LOS) problems. The projected ADT is approximately 1,620.
- Runoff from the developed site during the 2-year, 24-hour storm event will be detained on site within detention facilities. The facilities will limit discharge from the site to the 2-yr, 24-hour pre-developed flow rates or less. All off-site flows will pass through the site as they have historically, and therefore, all requirements of the DEQ Circular 8 should be satisfied for the development.

- Water & Sewer services are available. The applicant will be extending the water main line from the Super 8 property, under Hwy 59. An easement agreement is in place. By ordinance, both the water main extension and the draft easement agreement require Council approval. Approval is scheduled for the Mar 22, 2016 meeting. The sewer main service connection will be extended from the New Hunan Restaurant property via a Custer Co. Water & Sewer District easement. The water main will be owned by the City while the sanitary sewer line will remain with the District. Electrical & communications services are available on site.
- The proposed development is outside of any historic district.
- Parking requirements have been met and exceeded. One parking stall per 250 sq. ft. of the building is required. The site provides 22 stalls, including 2 ADA spaces for cars and 25 spaces for tractor-trailer parking.
- The use meets all of the General Commercial (GC) zoning code requirements for setbacks, height restrictions, signage, parking standards, and design requirements. The City Building Inspector will review and approve the building design.
- The proposed use has no significant impacts to neighboring land uses. The site is bordered the following zones: GC to the north and east, Residential A (RA) to the west and Open Space (OS) to the south. There are no current plans for development of the RA zone on the west property line.
- The proposed project appears to comply with all adopted regulations and policies.
- The maximum height of the proposed addition is 27' 10", well within reach of current Fire Department equipment.
- The property is not located in the floodway or the flood fringe.
- A screened solid waste collection area is located at the NW corner of Lot 2.
- MCPD has reviewed the application and found there is little to no additional impact for police services as the project area is located within city limits and currently receives these services.
- The use complies with the City Zoning requirements for land use, height, setbacks, signage and other design requirements.
- The use will not be detrimental to or endanger public health, safety or general welfare as the proposed use is surrounded by compatible uses.
- The existing and reasonably anticipated permitted uses in the area will not be substantially impaired or diminished by the establishment of the proposed use as the project is surrounded by compatible uses.
- Adequate utilities, access ways, drainage, and other necessary site improvements will be provided prior to occupancy.

RECOMMENDATION:

Through review of the above criteria, Staff has determined that the use satisfies Section 24-96(g)(1) and (2) of the Zoning Code. Therefore, the Planning Board recommends that the City Council adopt this staff report as findings of fact and grant conditional approval of this project, subject to the following conditions:

CONDITIONS:

- Any modification to the approved application and plans that affect building codes, zoning regulations or public facilities shall require additional review by the City of Miles City.

- The owner shall comply with all applicable codes in the Miles City Code of Ordinances Section 15 concerning Public Nuisances.

- The owner shall receive DEQ approvals prior to start of construction.

- The owner or owner's representative shall apply for a building permit prior to construction.

- The water, sewer and other utilities connections shall be approved by the applicable service providers prior to construction.

- Fire hydrants must be Mueller A-2360 series MJ. All fasteners will be corten material or equivalent. A flushing device for the 8" main on the north end of property is required to enable flushing of the line. Applicant must provide detailed drawings for the air/water station to the Public Utility Director.

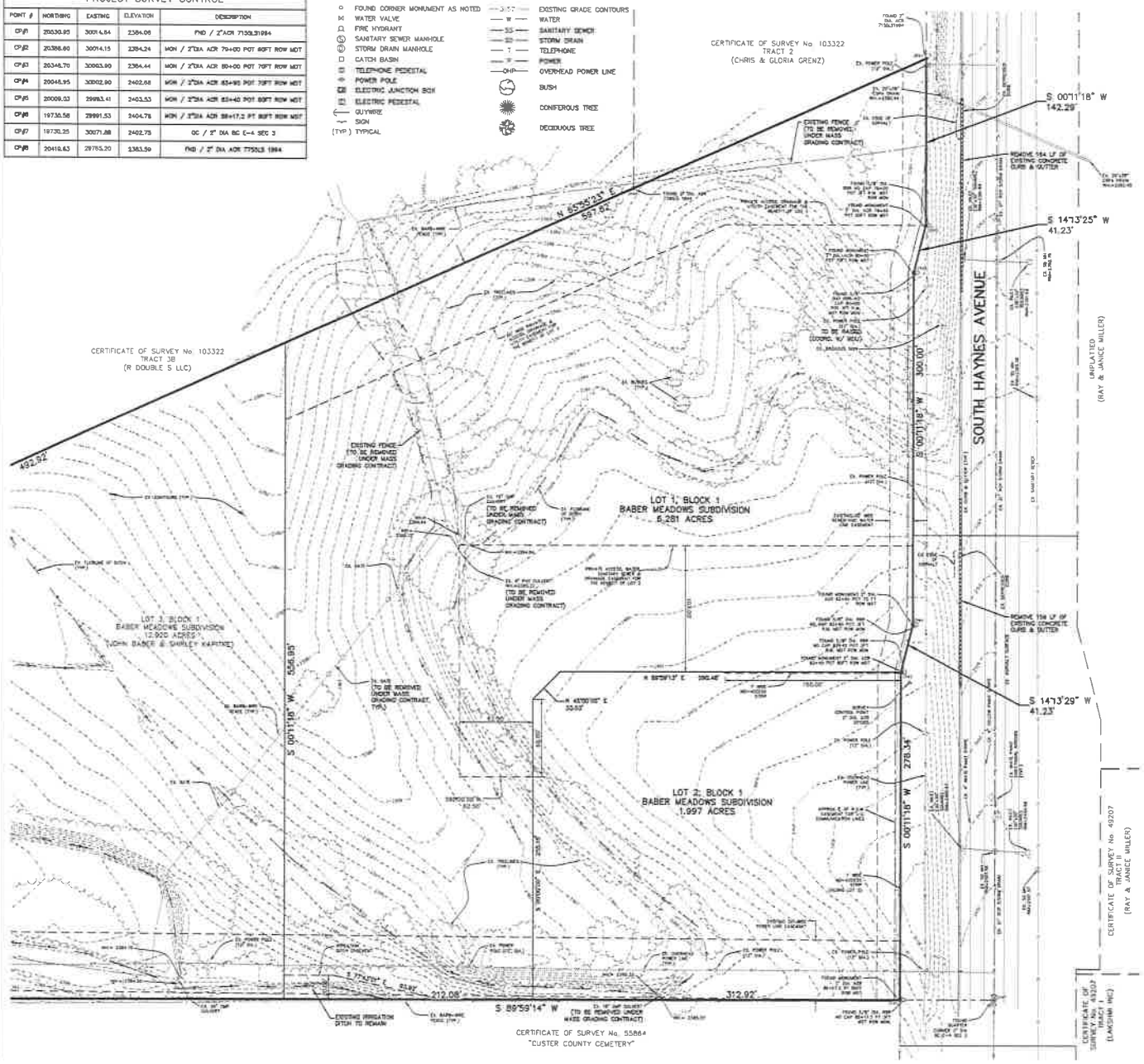
- The owner shall submit a letter of review from the Miles City Fire Department indicating adequate fire protection plans have been developed and the department can adequately respond to emergencies at the facility. Any fire department requirements, such as fire hydrants, access plans/improvements, sprinkler systems, firewalls, and other fire code requirements shall be approved by the fire department prior to occupancy.

- A Certificate of Occupancy is contingent upon the application meeting all conditions of approval.

PROJECT SURVEY CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	20530.95	30014.84	2384.06	FND / 2"ACR 7150L31984
CP#2	20388.60	30014.15	2384.24	MON / 2"DIA ACR 79+00 POT 80FT ROW MDT
CP#3	20348.70	30063.90	2384.44	MON / 2"DIA ACR 80+00 POT 70FT ROW MDT
CP#4	20048.95	30002.90	2402.68	MON / 2"DIA ACR 83+95 POT 70FT ROW MDT
CP#5	20009.03	29983.41	2403.53	MON / 2"DIA ACR 83+40 POT 80FT ROW MDT
CP#6	19730.58	29991.53	2404.76	MON / 3"DIA ACR 88+17.2 PT 80FT ROW MDT
CP#7	19730.25	30071.88	2402.75	OC / 2" DIA BC C-4 SEC 3
CP#8	20419.63	29765.20	2383.59	FND / 2" DIA ACR 7750L3 1984

LEGEND

- FOUND CORNER MONUMENT AS NOTED
- WATER VALVE
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- CATCH BASIN
- TELEPHONE PEDESTAL
- POWER POLE
- ELECTRIC JUNCTION BOX
- ELECTRIC PEDESTAL
- GUYWIRE
- SIGN
- (TYP.) TYPICAL
- EXISTING GRADE CONTOURS
- WATER
- SANITARY SEWER
- STORM DRAIN
- TELEPHONE
- POWER
- OVERHEAD POWER LINE
- BUSH
- CONIFEROUS TREE
- DECIDUOUS TREE



VICINITY MAP

NOT TO SCALE

NORTH

SCALE: 1" = 40'

LEGAL DESCRIPTION

BABER MEADOWS SUBDIVISION SITUATED IN THE SE ¼ OF SECTION 3, T. 7N., R. 47 E., P.M.M., LYING SOUTH OF INTERSTATE 94 CUSTER COUNTY, MONTANA, AS RECORDED IN THE CUSTER COUNTY CLERK & RECORDERS OFFICE AS DOCUMENT NO. 164215 ENVELOPE NO. 3464

GENERAL NOTES

- EXISTING UNDERGROUND INSTALLATIONS & PRIVATE UTILITIES SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF SUCH (INFORMATION. SERVICE LINES (WATER, POWER, GAS, STORM, SEWER, TELEPHONE & TELEVISION) MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THE PLANS. STATE LAW REQUIRES CONTRACTOR TO CALL ALL UTILITY COMPANIES BEFORE EXCAVATION FOR EXACT LOCATIONS.

- ALL IMPROVEMENTS SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION, APRIL, 2010, AND CITY OF MILES CITY STANDARDS.

- UNLESS OTHERWISE SPECIFIED: ALL CONSTRUCTION LAYOUT AND STAKING SHALL BE PERFORMED UNDER THE RESPONSIBLE CHARGE OF A LAND SURVEYOR LICENSED IN THE STATE OF MONTANA AND BY A PARTY CHIEF OR ENGINEERING TECHNICIAN EXPERIENCED IN CONSTRUCTION LAYOUT AND STAKING TECHNIQUES AS ARE REQUIRED BY THE SPECIFIC TYPE OF WORK BEING PERFORMED.

- THE CONTRACTOR SHALL MAKE NOTE THAT THIS PROJECT IS SUBJECT TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STORM WATER GENERAL DISCHARGE PERMIT AUTHORIZATION. CONTRACTOR SHALL PAY THE APPLICATION FEE, THE FIRST ANNUAL FEE AND ADDITIONAL ANNUAL FEES NECESSARY UNTIL THE TERMINATION OF THE PERMIT HAS BEEN GRANTED BY THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ). CONTRACTOR IS RESPONSIBLE FOR SECURING AND ADMINISTERING THE PERMIT AND INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL STRUCTURES. ALL STORM WATER MANAGEMENT AND EROSION CONTROL FOR THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH CAN BE OBTAINED FROM MDEQ 47.

- ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY, INCLUDING THE NEW DRIVE APPROACHES, UTILITY SERVICE CONNECTIONS, DRAINAGE IMPROVEMENTS, LANDSCAPE, ETC., IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.

- NO WORK SHALL TAKE PLACE WITHIN MDT RIGHT-OF-WAY UNTIL ALL REQUIRED PERMITS ARE ACQUIRED.

- ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS

- ALL SITE AND UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PROVIDED FOR THIS PROJECT, WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.

- MASS GRADING OF THE SITE HAS BEEN PERFORMED UNDER SEPARATE CONTRACT.

SITE CONTOURS SHOWN BASED ON SURVEY DATED MARCH 20, 2015
PRIOR TO MASS GRADING CONTRACT

SITE DEMOLITION NOTES

- ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES ARE APPROXIMATE AND THE PROJECT DRAWINGS MAY NOT INCLUDE ALL EXISTING FEATURES WITHIN THE PROJECT BOUNDARIES. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE SITE PRIOR TO BIDDING AND CONSTRUCTION TO BECOME FAMILIAR WITH THE EXISTING SITE FEATURES AND CONDITIONS. IF DISCREPANCIES ARE FOUND BETWEEN THE PROJECT DRAWINGS AND FIELD CONDITIONS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR CLARIFICATION.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS NECESSARY TO COMPLETE THE PROPOSED WORK INCLUDING DEMOLITION, RIGHT-OF-WAY AND ENVIRONMENTAL PERMITS.

- ALL PUBLIC AND PRIVATE UTILITY TERMINATIONS, RELOCATIONS AND REPAIRS TO BE COORDINATED WITH THE APPLICABLE UTILITY PROVIDERS AND PERFORMED IN ACCORDANCE TO THEIR RESPECTIVE STANDARDS AND SPECIFICATIONS.

- ALL EXISTING MATERIALS TO BE REMOVED SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS.

- ALL REMOVED, DISTURBED OR DAMAGED EXISTING ASPHALT, CURB AND GUTTER, PUBLIC SIDEWALK AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT-OF-WAY TO BE RESTORED IN ACCORDANCE TO MDT STANDARDS. ALL ASPHALT MATCH LINES SHALL BE SAW CUT TO PROVIDE FLUSH TRANSITION.

- ALL EXCAVATIONS OR VOIDS CREATED DURING DEMOLITION SHALL BE BACKFILLED AND COMPACTED IN A CONTROLLED MANNER PER THE PROJECT GEOTECHNICAL REQUIREMENTS.

- REMOVE AND DISPOSE ALL MISCELLANEOUS ITEMS AND DEBRIS AS REQUIRED TO PROVIDE CLEAN AND WORKABLE SITE.

PERMIT SET

SANDERSON STEWART

www.sandersonstewart.com

PM: U:\2016-04_WS_15109_04_EXISTING_PROD.DWG
QC: DR 10/28/15

Revisions

WALTER R. SMITH JR. No. 18982 MONTANA PROFESSIONAL ENGINEER

EXISTING TOPOGRAPHY & DEMOLITION PLAN

CENEX ZIP TRIP #75
FUELING STATION - C-STORE - TRUCK STOP
1815 S. HAYNES AVE.
MILES CITY, MT 59301

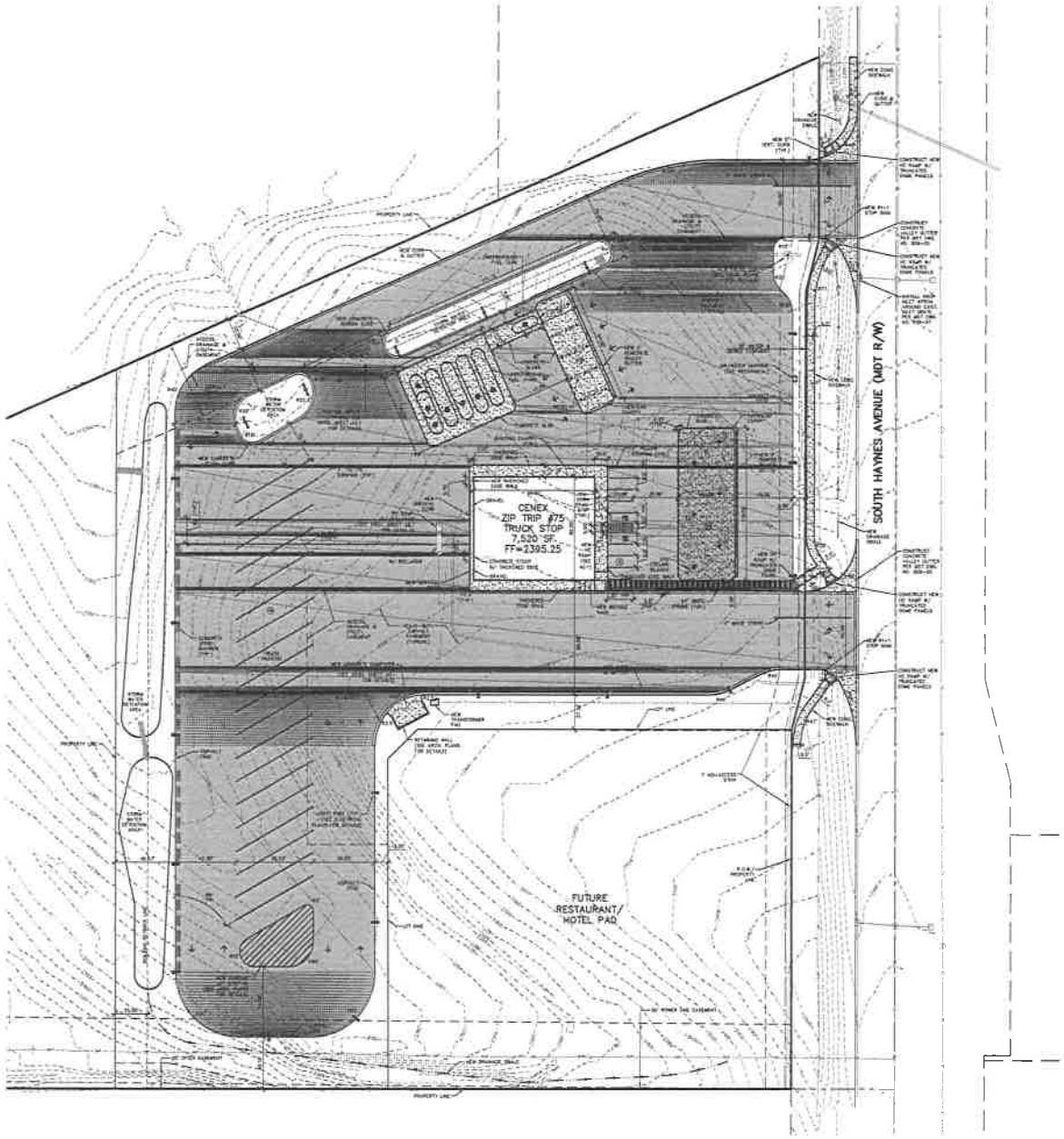
Zip Trip

WAG
Wolfe Architectural Group
1015 N. Calispell Street, Suite "B"
Spokane, Washington 99202
o 509.455.8899 f 509.455.3933
www.awgarch.com

Project No.	15 109
Date	01.08.16
Drawn By	WRS
Checked By	DP

Sheet No. 1 of 6

C1.0



SITE DATA

ZONING: GC

LEGAL DESCRIPTION: LOTS 1 & 2, BLOCK 1
BARBER MEADOWS SUBDIVISION

LOT 1 AREA = 8.281 AC
LOT 2 AREA = 1.997 AC

	REQUIRED	PROVIDED (MIN.)
FRONT SETBACK	0 FT	163.5 FT
REAR SETBACK	25 FT	277.5 FT
SIDE SETBACK	0 FT	115.5 FT
OFF STREET PARKING	(TO BE DETERMINED BY CITY)	21 VEHICLE STALLS 25 52'x8'-TRAILER STALLS

NORTH

40 20 0 40 80

SCALE: 1" = 40'

GENERAL NOTES:

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HTTP://WWW.DEQ.STATE.MT.US/WQ/STORMWATER/STORMWATERCONSTRUCTION.ASP

– ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY, INCLUDING THE NEW DRIVE APPROACHES, UTILITY SERVICE CONNECTIONS, DRAINAGE IMPROVEMENTS, LANDSCAPE, ETC., IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.

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– ALL SITE AND UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT, WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.

– MASS GRADING OF THE SITE HAS BEEN PERFORMED UNDER SEPARATE CONTRACT

SITE NOTES:

–REFER TO ARCHITECTURAL SHEET A0.1 FOR ADDITIONAL SITE DETAILS.

–REFER TO LANDSCAPE AND ELECTRICAL SITE PLANS FOR ADDITIONAL SITE INFORMATION.

–FUEL TANKS AND FUEL PUMPS BY OTHERS.

PERMIT SET

SANDERSON STEWART
www.sandersonstewart.com

PM:13034.04 WS 13034_04_SITE_PROD.DWG
QC DR:10/24/13

Revisions

WALTER R. SMITH JR. No 18962

SITE PLAN

CENEX ZIP TRIP #75
FUELING STATION - C-STORE - TRUCK STOP
1815 S. HAYNES AVE.
MILES CITY, MT 59301

Zip Trip

WAG
Wolfe Architectural Group
1015 N Caldwell Street Suite "B"
Cashmere Washington 98201
p.509.782.8889 f.509.782.0816
www.wagarch.com

Project No.:	15.109
Date:	01.06.15
Drawn By:	WRS
Checked By:	JM

Sheet No. 2 of 6

C2.0

NORTH

SCALE: 1" = 20'

PERMIT SET

SANDERSON STEWART

www.sandersonstewart.com

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- MASS GRADING OF THE SITE HAS BEEN PERFORMED UNDER SEPARATE CONTRACT

LEGEND:

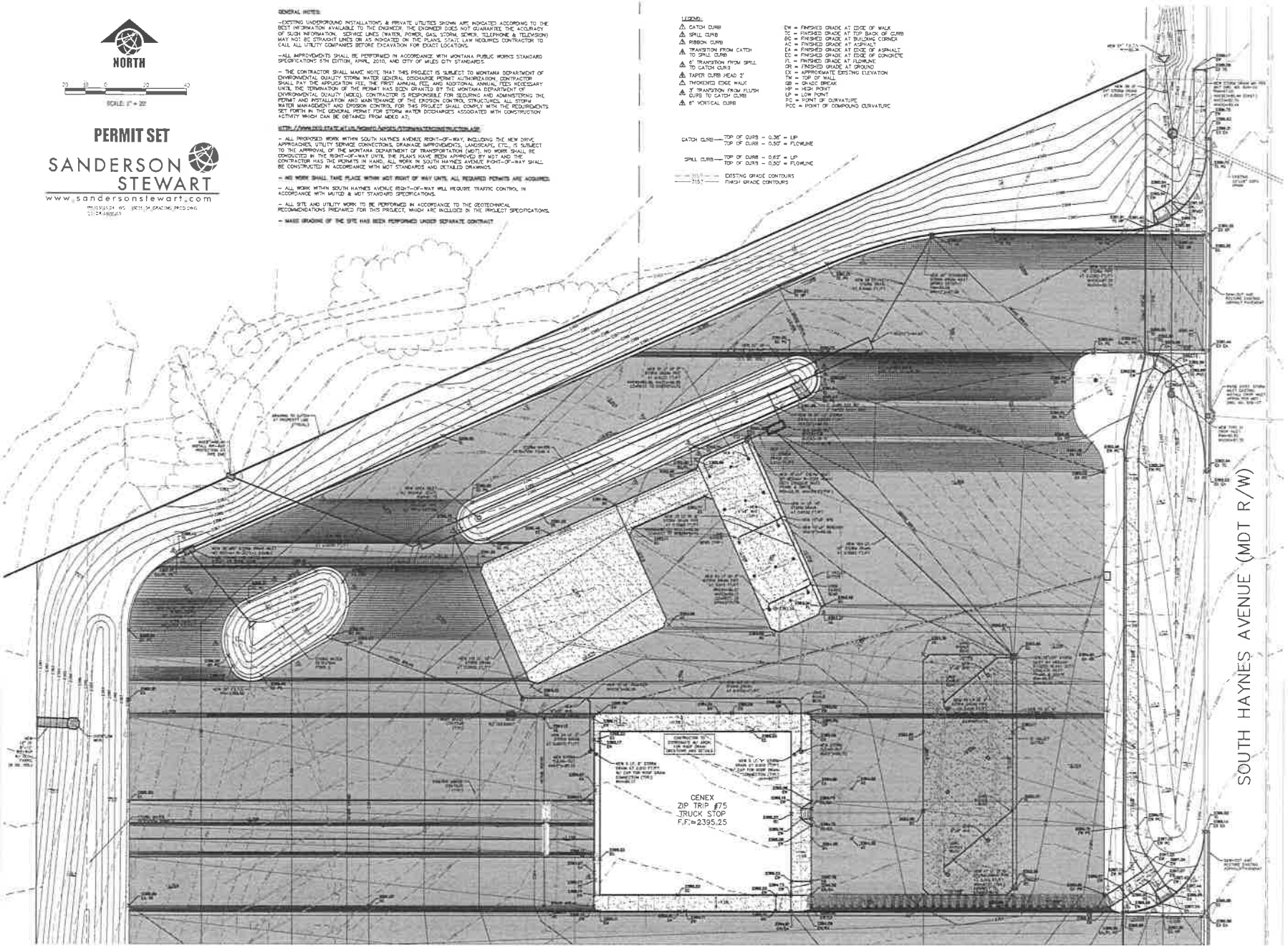
- CATCH CURB
- SPILL CURB
- RIBBON CURB
- TRANSITION FROM CATCH TO SPILL CURB
- 6" TRANSITION FROM SPILL TO CATCH CURB
- TAPER CURB HEAD 2'
- THICKENED EDGE WALK
- 3' TRANSITION FROM FLUSH CURB TO CATCH CURB
- 6" VERTICAL CURB

EW = FINISHED GRADE AT EDGE OF WALK
TC = FINISHED GRADE AT TOP BACK OF CURB
BC = FINISHED GRADE AT BUILDING CORNER
AC = FINISHED GRADE AT ASPHALT
EA = FINISHED GRADE AT EDGE OF ASPHALT
EC = FINISHED GRADE AT EDGE OF CONCRETE
FL = FINISHED GRADE AT FLOWLINE
GR = FINISHED GRADE AT GROUND
EX = APPROXIMATE EXISTING ELEVATION
TW = TOP OF WALL
GB = GRADE BREAK
HP = HIGH POINT
LP = LOW POINT
PC = POINT OF CURVATURE
PCC = POINT OF COMPOUND CURVATURE

CATCH CURB — TOP OF CURB – 0.36' = LIP; TOP OF CURB – 0.50' = FLOWLINE

SPILL CURB — TOP OF CURB – 0.67' = LIP; TOP OF CURB – 0.50' = FLOWLINE

— 3125 — EXISTING GRADE CONTOURS
— 3152 — FINISH GRADE CONTOURS



Revisions

GRADING PLAN - NORTH

CENEX ZIP TRIP #75
FUELING STATION - C-STORE - TRUCK STOP
1815 S. HAYNES AVE.
MILES CITY, MT 59301

Zip Trip

WAG
Wolfe Architectural Group

Project No. 15.100
Date 03.06.19
Drawn By WTG
Checked By SP

Sheet No. 1 of 6

C3.0

PERMIT SET

SANDERSON STEWART

www.sandersonstewart.com

PR 153016.04 WS 15016.04_GRADING_PRDO.DWG
QC 04 10/26/23

NORTH

20 10 0 20 40

SCALE: 1" = 20'

GENERAL NOTES:

--EXISTING UNDERGROUND INSTALLATIONS & PRIVATE UTILITIES SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION. SERVICE LINES (WATER, POWER, GAS, STORM, SEWER, TELEPHONE & TELEVISION) MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THE PLANS. STATE LAW REQUIRES CONTRACTOR TO CALL ALL UTILITY COMPANIES BEFORE EXCAVATION FOR EXACT LOCATIONS.

--UNLESS OTHERWISE SPECIFIED, ALL CONSTRUCTION LAYOUT AND STAKING SHALL BE PERFORMED UNDER THE RESPONSIBLE CHARGE OF A LAND SURVEYOR LICENSED IN THE STATE OF MONTANA AND BY A PARTY CHIEF OR ENGINEERING TECHNICIAN EXPERIENCED IN CONSTRUCTION LAYOUT AND STAKING TECHNIQUES AS ARE REQUIRED BY THE SPECIFIC TYPE OF WORK BEING PERFORMED.

-- THE CONTRACTOR SHALL MAKE NOTE THAT THIS PROJECT IS SUBJECT TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STORM WATER GENERAL DISCHARGE PERMIT AUTHORIZATION. CONTRACTOR SHALL PAY THE APPLICATION FEE, THE FIRST ANNUAL FEE, AND ADDITIONAL ANNUAL FEES NECESSARY UNTIL THE TERMINATION OF THE PERMIT HAS BEEN GRANTED BY THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ). CONTRACTOR IS RESPONSIBLE FOR SECURING AND ADMINISTERING THE PERMIT AND INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL STRUCTURES. ALL STORM WATER MANAGEMENT AND EROSION CONTROL FOR THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH CAN BE OBTAINED FROM MDEQ AT:

HTTP://WWW.DEQ.STATE.MT.US/WQ/DENR/APPS/STORMWATER/CONSTRUCTION.ASP

--ALL IMPROVEMENTS SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION, APRIL 2010, AND CITY OF MILES CITY STANDARDS.

--ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY, INCLUDING THE NEW DRIVE APPROACHES, UTILITY SERVICE CONNECTIONS, DRAINAGE IMPROVEMENTS, LANDSCAPE, ETC., IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.

-- NO WORK SHALL TAKE PLACE WITHIN MDT RIGHT OF WAY UNTIL ALL REQUIRED PERMITS ARE ACQUIRED.

-- ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS.

-- ALL SITE AND UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT, WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.

-- MASS GRADING OF THE SITE HAS BEEN PERFORMED UNDER SEPARATE CONTRACT

LEGEND:

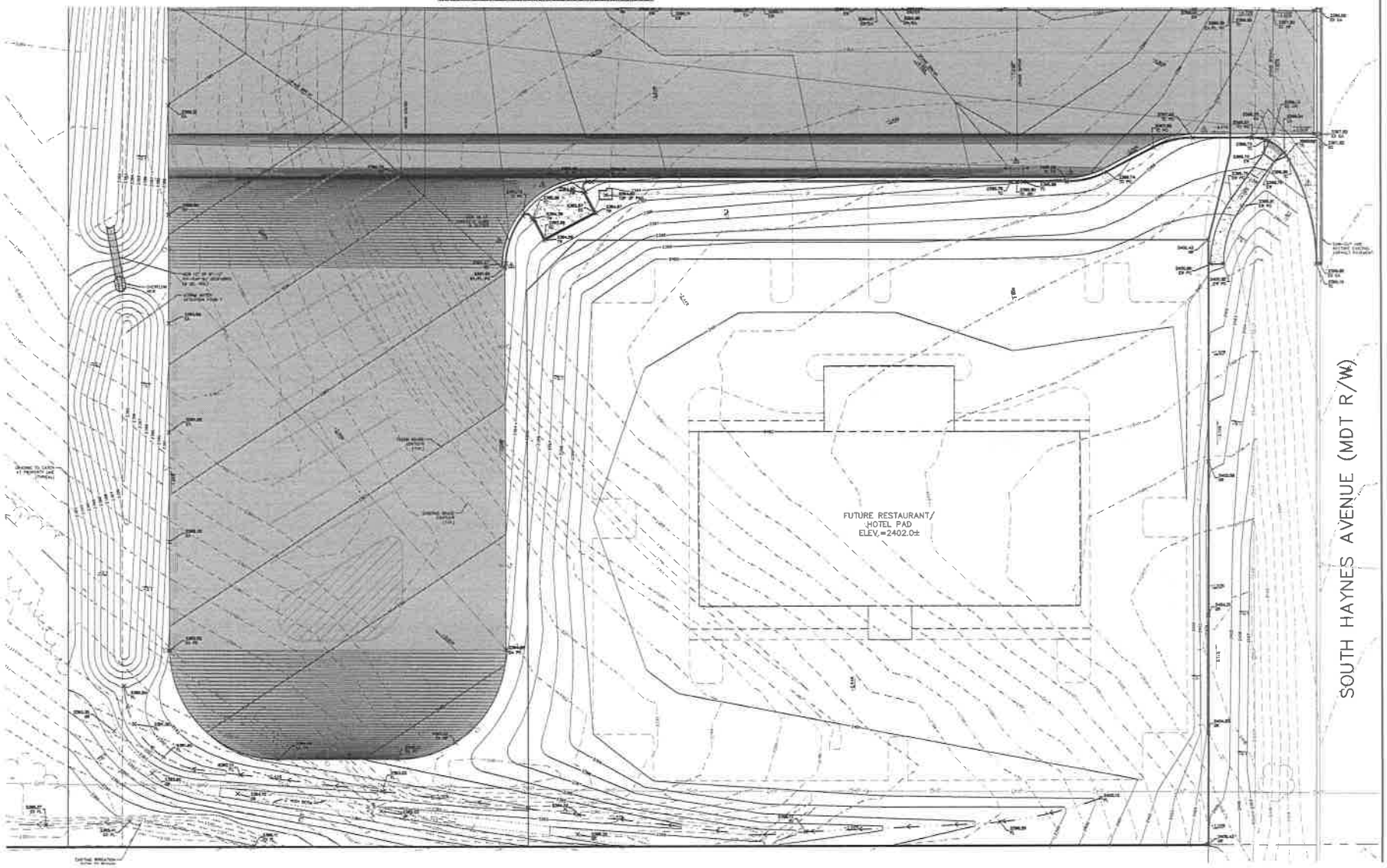
- CATCH CURB
- SPILL CURB
- RISER CURB
- TRANSITION FROM CATCH TO SPILL CURB
- 6" TRANSITION FROM SPILL TO CATCH CURB
- TAPER CURB HEAD 2'
- THICKENED EDGE WALK
- 2" TRANSITION FROM FLUSH CURB TO CATCH CURB
- 6" VERTICAL CURB

CATCH CURB — TOP OF CURB - 0.36" = LIP; TOP OF CURB - 0.50" = FLOWLINE

SPILL CURB — TOP OF CURB - 0.63" = LIP; TOP OF CURB - 0.50" = FLOWLINE

EW = FINISHED GRADE AT EDGE OF WALK
TC = FINISHED GRADE AT TOP BACK OF CURB
BC = FINISHED GRADE AT BUILDING CORNER
AC = FINISHED GRADE AT ASPHALT
EA = FINISHED GRADE AT EDGE OF ASPHALT
EC = FINISHED GRADE AT EDGE OF CONCRETE
FL = FINISHED GRADE AT FLOWLINE
EX = APPROXIMATE EXISTING ELEVATION
TW = TOP OF WALL
GB = GRADE BREAK
HP = HIGH POINT
LP = LOW POINT
PC = POINT OF CURVATURE
PCC = POINT OF COMPOUND CURVATURE

— — 3141 — — EXISTING GRADE CONTOURS
—— 3157 —— FINISH GRADE CONTOURS



Revisions:

WALTER R. SMITH JR. No 18863

GRADING PLAN - SOUTH

CENEX ZIP TRIP #75
FUELING STATION - C-STORE - TRUCK STOP
1815 S. HAYNES AVE.
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Zip Trip

WAG
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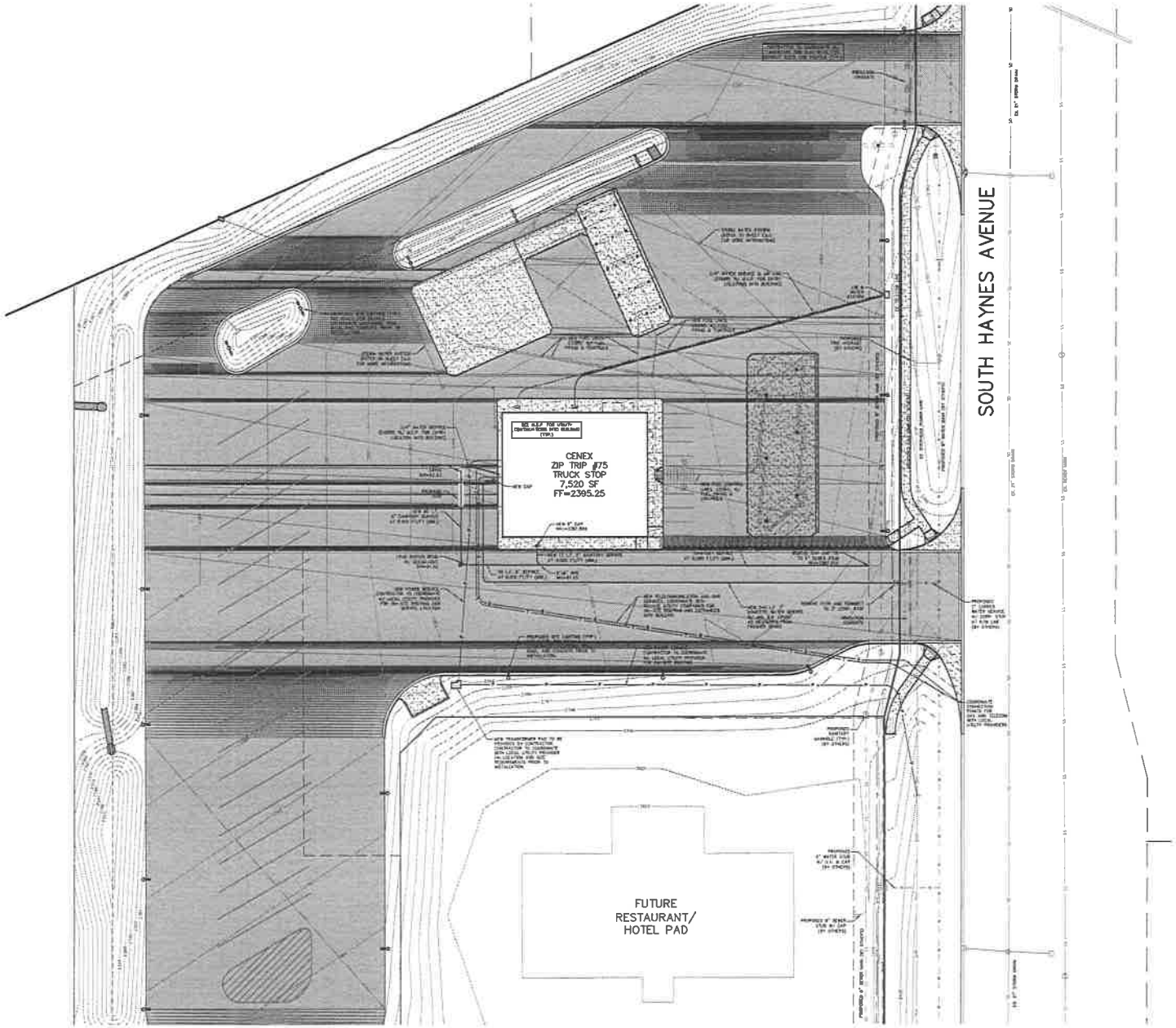
www.wagproj.com

Project No.	15.109
Date	01.06.26
Drawn By:	WRS
Checked By:	CP

Sheet No. 4 of 5

C3.1



NORTH

SCALE: 1" = 30'

GENERAL NOTES:

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–OFF-SITE UTILITY MAINS AND ASSOCIATED APPURTENANCES SHOWN AS "PROPOSED" ON THIS PLAN ARE TO BE CONSTRUCTED AND PERMITTED UNDER SEPARATE CONTRACT. THE OFF-SITE WATER AND SEWER MAINS SHALL BE PERMITTED AND INSTALLED PRIOR TO THE INSTALLATION OF THE SITE UTILITIES. FINAL CONNECTION POINTS AND INVERT ELEVATIONS SHALL BE COORDINATED WITH OFF-SITE UTILITY CONTRACTOR ONCE INSTALLED.

-SEE M.E.P. PLANS FOR CONTINUATION OF UTILITY SERVICES INTO BUILDING.

–CONTRACTOR TO COORDINATE WITH ELECTRICAL, ARCHITECTURAL AND LANDSCAPE PLANS FOR CONDUIT SIZING AND ROUTING.

PERMIT SET

SANDERSON STEWART

www.sandersonstewart.com

PW:\13236-04_WS 18756_04_UTILITY_PROD.DWG
QC: DR:10/28/15

Revisions

WALTER H. SMITH JR. No. 13880

UTILITY PLAN

CENEX ZIP TRIP #75
FUELING STATION - C-STORE - TRUCK STOP
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Zip Trip

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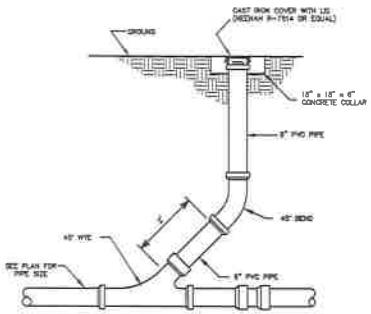
Project No.	15-129
Date	01.26.16
Drawn By	WRS
Checked By	SP

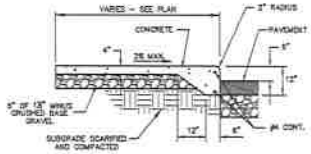
Sheet No. 5 of 6

C4.0



CLEAN-OUT DETAIL

NOT TO SCALE



THICKENED EDGE WALK DETAIL

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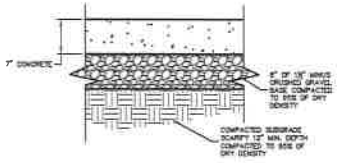

TYPICAL CONCRETE PAVING DETAIL FOR DUMPSTER PAD

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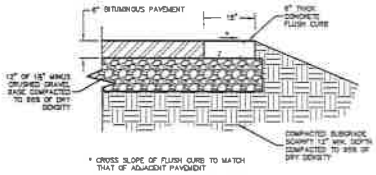

RIBBON CURB

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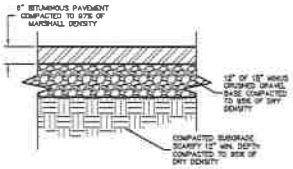

TYPICAL HEAVY-DUTY ASPHALT PAVING SECTION

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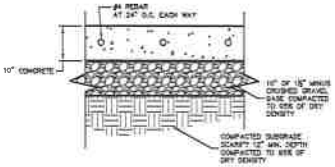

TYPICAL CONCRETE PAVING DETAIL FOR GAS AND DIESEL DRIVE SLABS

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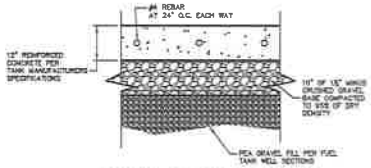
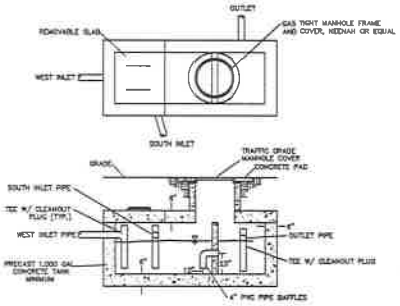


TYPICAL CONCRETE PAVING DETAIL FOR TANK SLAB

NOT TO SCALE



OIL/WATER SEPERATOR

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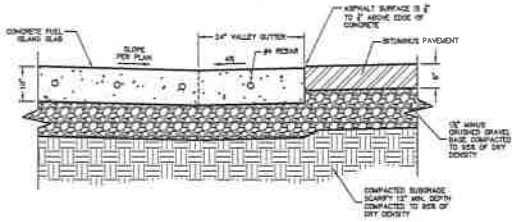
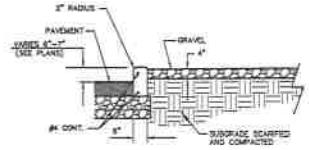


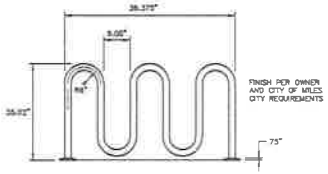
CONCRETE VALLEY GUTTER

NOT TO SCALE



6" VERTICAL CURB DETAIL

NOT TO SCALE



BIKE RACK DETAIL

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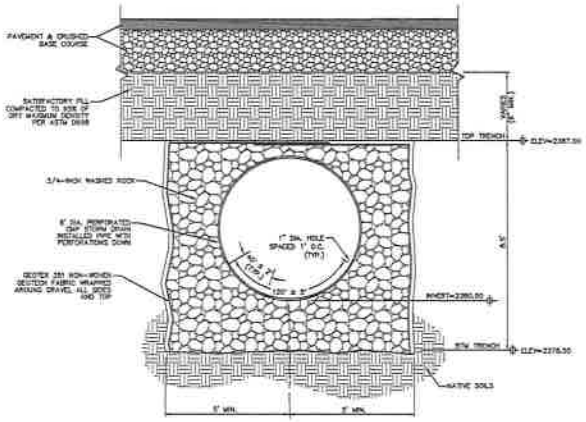

STORM WATER STORAGE PIPE INSTALLATION DETAIL

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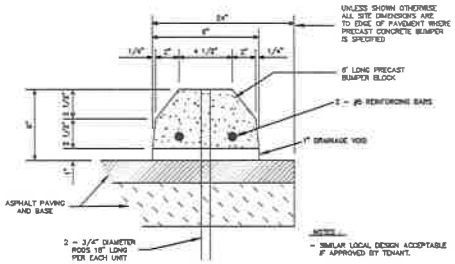

PRE-CAST CONCRETE PIN-DOWN PARKING STOP

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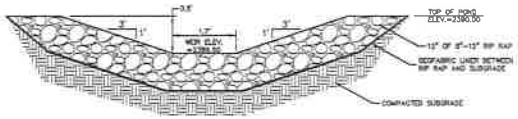
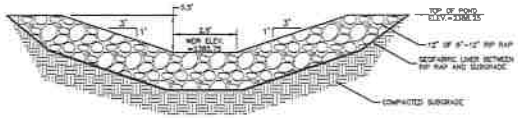


WEIR FROM POND 1 TO POND 2

NOT TO SCALE



OUTFALL WEIR FROM POND 2

NOT TO SCALE

NOTE:

-ALL IMPROVEMENTS SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION, APRIL, 2010, AND THE CITY OF MILES CITY DESIGN STANDARDS

PERMIT SET

SANDERSON STEWART

www.sandersonstewart.com

PM:15016.04 WR5 15016.04 DETAILS.DWG
QC DR:12/28/15

DETAILS

CENEX ZIP TRIP #75
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1815 S. HAYNES AVE.
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Zip Trip

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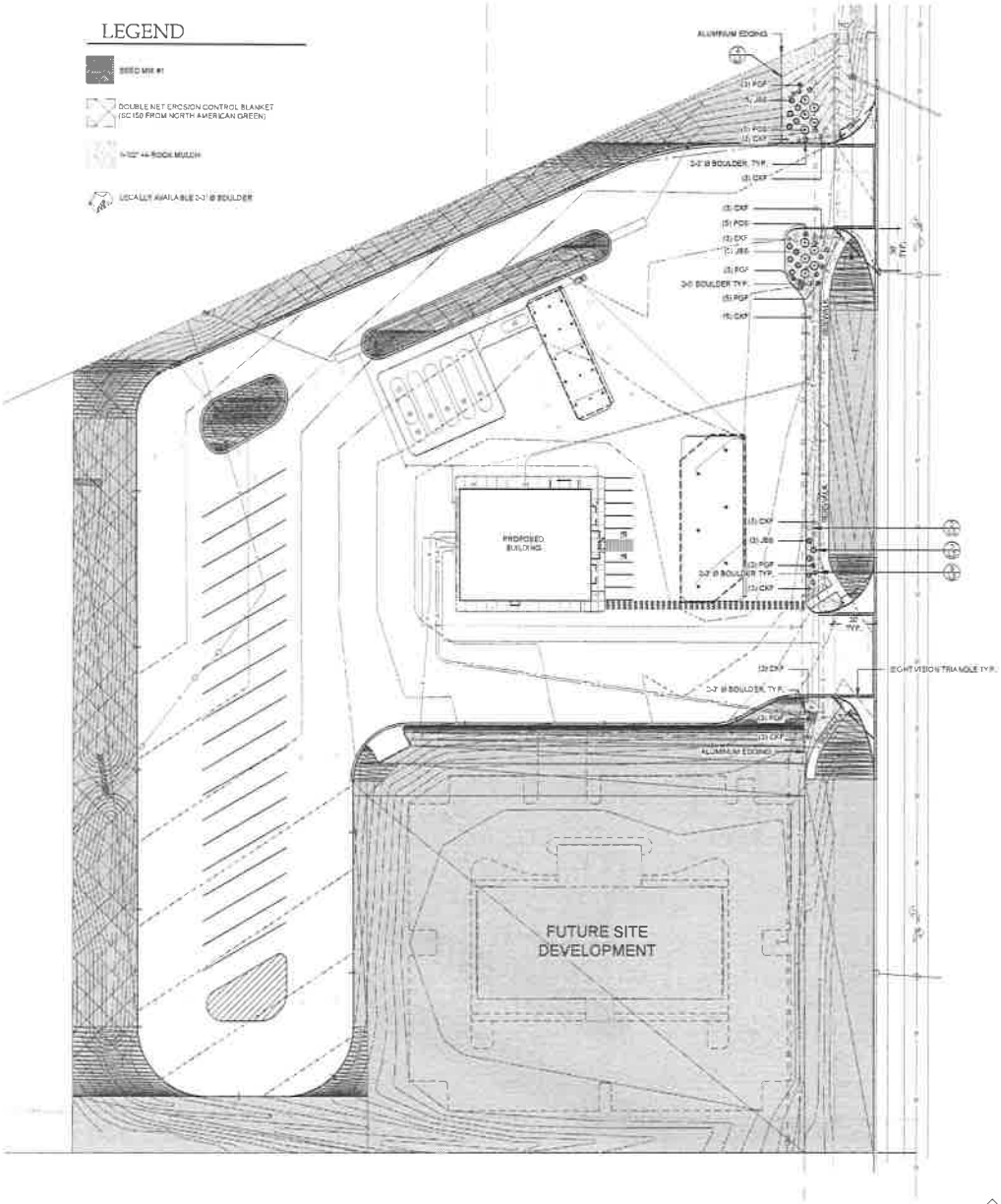
Project No.	15.100
Date	01.08.16
Drawn By	WRS
Checked By	DP

Sheet No. 6 of 6

C5.0

LEGEND

- SEED MIX #1
- DOUBLE NET EROSION CONTROL BLANKET (SC150 FROM NORTH AMERICAN GREEN)
- 1-1/2" +/- ROCK MULCH
- LOCALLY AVAILABLE 2-3' Ø BOULDER



PLANT SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	MATURE HEIGHT	MATURE WIDTH
DECIDUOUS SHRUBS							
POF	17	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	#5	CONTAINER	3'	3'
POS	10	PHYSOCARPUS OPULIFOLIUS 'SEWARD'	SUMMER WINE NINEBARK	#5	CONTAINER	5-6'	5-6'
CONIFEROUS SHRUBS							
JBS	13	JUNIPERUS SQUAMATA 'BLUE STAR'	BLUE STAR JUNIPER	#5	CONTAINER	2-3'	3-4'
ORNAMENTAL GRASSES							
CKF	29	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	#1	CONTAINER	5-6'	18-24"

PLANTING NOTES

1. VERIFY WITH THE PROJECT MANAGER AND UTILITY COMPANIES THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START. REPAIR ALL DAMAGES TO EXISTING UTILITIES, CURBS, PAVEMENTS AND STRUCTURES WHICH OCCUR DURING THE CONSTRUCTION OF THE PROJECT OR AS A RESULT OF THE CONTRACTOR'S ACTIVITIES, AT NO ADDITIONAL COST TO THE OWNER.
2. SAFEGUARD ALL BUILDING SURFACES, EQUIPMENT AND FURNISHINGS. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY WHICH MAY OCCUR AS A RESULT OF NEGLIGENCE IN THE EXECUTION OF WORK.
3. COORDINATE WITH ARCHITECTURE/ENGINEERING PLANS TO BECOME THOROUGHLY FAMILIAR WITH GRADING, SURFACE AND UNDERGROUND CONDITIONS AND UTILITIES.
4. ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR ON-SITE BEFORE CONSTRUCTION BEGINS. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK.
5. ENSURE THAT THE LANDSCAPING WORK DOES NOT INTERRUPT ESTABLISHED OR PROPOSED DRAINAGE PATTERNS. OBTAIN APPROVAL ON THE FINAL GRADE BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING PLANTING OPERATIONS. FINISH GRADE BEFORE MULCHING SHALL BE +/- 3" BELOW FINISH SURFACE OF ADJACENT PAVING.
6. FINE GRADE AND SLOPE ALL LANDSCAPED AREAS TO A MINIMUM OF 2.0% TO DRAIN; POSITIVELY NO SETTLEMENT, EROSION, SEDIMENTATION OR OFF-PROPERTY DRAINAGE NUISANCE SHALL BE ACCEPTED.
7. ALL FILL MATERIAL FOR BACKFILLING TRENCHES OR EXCAVATIONS SHALL BE FREE-DRAINING, GRANULAR MATERIAL APPROVED BY THE OWNER'S REPRESENTATIVE. THE GRANULAR MATERIAL SHALL BE LEFT A MINIMUM OF 12" BELOW FINISH GRADE.
8. PROVIDE TOPSOIL THAT IS LOOSE, FRIABLE AND SHALL CONTAIN AN ORDINARY AMOUNT OF ORGANIC MATTER. IT SHALL CONTAIN NO LUMPS OF SOIL OR ROCKS LARGER THAN 1". IT SHALL BE SUFFICIENTLY FERTILE TO SUSTAIN NORMAL, HEALTHY PLANT GROWTH. PROVIDE A MINIMUM OF 6" OF TOPSOIL IN ALL LAWN AREAS.
9. TEST THE TOPSOIL AFTER ROUGH GRADING IS COMPLETE TO DETERMINE THE SOIL AMENDMENTS REQUIRED IN ORDER TO PROVIDE A GROWING MEDIUM AS DESCRIBED. SUBMIT A COPY OF ANALYSES AND RECOMMENDATIONS TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.
10. UTILIZE A PLANTING MIX OF TWO (2) PARTS TOPSOIL, ONE (1) PART AGED COMPOST, AND ONE (1) PART SAND IN ALL PLANTING BEDS FROM 12" BELOW FINISHED GRADE TO FINISHED GRADE.
11. COORDINATE WITH OTHER CONTRACTORS, AS NECESSARY, REGARDING LOCATION AND TIMING OF INSTALLATION OF PLANT MATERIALS.
12. PLANT MATERIALS SHALL BE FURNISHED IN THE QUANTITIES AND/OR SPACING AS SHOWN OR NOTED. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT SCHEDULE, THE PLAN SHALL DICTATE.
13. PLANT MATERIALS ARE DRAWN AT OR NEAR THEIR MATURE SIZE. UTILIZE THE CENTER POINT OF THE SYMBOL TO DETERMINE PROPER PLANT LAYOUT AND PLACEMENT.
14. LAYOUT PLANT LOCATIONS AND PLANTING BED EDGES AND OBTAIN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
15. ALL PLANTS ARE TO MEET OR EXCEED 'AMERICAN STANDARDS FOR NURSERY STOCK', CURRENT EDITION BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION. ALL PLANTS SHALL BE NURSERY-GROWN UNLESS OTHERWISE NOTED.
16. PLACE TYPAR 3301 WEED FABRIC IN ALL PLANTING BEDS.
17. PLANT FERTILIZER SHALL BE AGRIFORM (21 GRAM), 20-10-5 BY WEIGHT, APPLIED AT THE RATE RECOMMENDED BY SOIL TESTING AND SUITED TO THE SPECIFIED PLANTS.
18. PROVIDE 1-1/2" MINUS ROCK MULCH, 3" MINIMUM DEPTH FOR PLANTING BEDS. PROVIDE SOURCE AND SAMPLE FOR APPROVAL BY THE OWNER'S REPRESENTATIVE.
19. COORDINATE THE PLANTING WITH IRRIGATION SYSTEM LAYOUT. THE OWNER IS NOT RESPONSIBLE FOR DAMAGE CAUSED BY OTHER TRADES WHILE COMPLETING THIS WORK.
20. ALL SUBSTITUTIONS AND PLAN CHANGES MUST BE APPROVED BY THE LANDSCAPE ARCHITECT. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER'S REPRESENTATIVE.
21. ANY WORK OR MATERIAL WHICH IN THE OPINION OF THE OWNER'S REPRESENTATIVE DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS WILL BE CAUSE FOR REJECTION. ALL REJECTED WORK AND MATERIALS SHALL BE IMMEDIATELY REMOVED, DISPOSED AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
22. BEGIN MAINTENANCE AFTER EACH PLANT HAS BEEN INSTALLED AND CONTINUE UNTIL FINAL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE. MAINTENANCE INCLUDES WATERING, PRUNING, WEEDING, MULCHING, REPLACEMENT OF SICK OR DEAD PLANTS AND ANY OTHER CARE NECESSARY FOR THE PROPER GROWTH OF PLANT STOCK.
23. DURING THE COURSE OF THIS WORK, REMOVE EXCESS WASTE MATERIAL DAILY FROM THE SITE AND UPON COMPLETION OF ALL WORK.
24. UPON COMPLETION OF ALL LANDSCAPING, A SUBSTANTIAL COMPLETION WALK-THROUGH OF THE WORK WILL BE HELD. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR SCHEDULING THE WALK-THROUGH AT LEAST SEVEN (7) DAYS PRIOR TO THE ANTICIPATED DATE.
25. WARRANTY ALL PLANT STOCK AND WORKMANSHIP FOR 12 MONTHS FROM THE DATE OF FINAL ACCEPTANCE. REPLACEMENT PLANTS SHALL BE WARRANTED FOR AN ADDITIONAL 90 DAYS.
26. THE CONTRACTOR SHALL NOT BE RESPONSIBLE AT ANY TIME TO REPLACE OR HONOR ANY WARRANTY FOR THE LOSS OF ANY TREES, PLANTS, GROUND COVERS OR SOD CAUSED BY FIRE, FLOODS, LIGHTNING, WINDS ABOVE 70 MILES PER HOUR OR ANY OTHER NATURAL DISASTER. NOR SHALL THE CONTRACTOR BE HELD RESPONSIBLE FOR ACTS OF VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.
27. PROVIDE TO THE OWNER'S REPRESENTATIVE A WRITTEN ANNUAL MAINTENANCE PROGRAM TO PROPERLY CARE FOR AND MAINTAIN THE LANDSCAPING. INCLUDE CONTACT INFORMATION REGARDING THE INSTALLERS AND SUPPLIERS OF THE MATERIALS ALONG WITH A WARRANTY CERTIFICATE.

SEEDING NOTES

1. PROVIDE TO THE OWNER'S REPRESENTATIVE CERTIFICATES FOR THE SEED MIXTURE. THE SEEDING CERTIFICATE SHALL IDENTIFY THE SPECIES AND PERCENTAGES, GERMINATION PERCENTAGES, WEED PERCENTAGES AND INERT MATTER.
2. SEED MIX #1, QUALITY SLOPE MIX, AVAILABLE FROM NORTHWEST SEED CO.
   40% FAIRWAY CRESTED WHEATGRASS
   30% PERENNIAL RYEGRASS
   20% SMOOTH BROME
   10% CANADA OR PASTURE BLUEGRASS
3. COMPOST: PROVIDE WELL-COMPOSTED, STABLE AND WEED-FREE ORGANIC MATTER. APPROVED SOURCES OF COMPOST ARE GLACIER GOLD, 406-846-1403; EKO COMPOST 406-721-4123; BIG BUTTE COMPOST, 406-782-6190; EARTH SYSTEMS COMPOST, 406-862-0860; OR ROCKY MOUNTAIN COMPOST, 406-245-4817.
4. PROVIDE COMMERCIAL-GRADE FERTILIZER OF NEUTRAL CHARACTER WITH BOTH FAST AND SLOW-RELEASE NITROGEN. PROVIDE COMPOSITION AND WEIGHTS BASED UPON SOIL TEST RESULTS.
5. LOOSEN SUBGRADES TO A DEPTH OF 6 INCHES. REMOVE ANY STONES LARGER THAN 1 INCH. SPREAD 4 INCHES OF TOPSOIL AND 2 INCHES OF COMPOST AND ROTOTILL COMPOST INTO TOPSOIL FOR A TOTAL SEED BED PROFILE OF 6 INCHES.
6. FINISH GRADE AGAINST EDGING OR PAVEMENT TO ALLOW FOR THICKNESS OF SEED.
7. DRILL SEED MIXES WITH A DRILL SEEDER WITH A SPACING THAT DOES NOT EXCEED 3-1/2 INCHES.
8. BOW SEED AT A RATE OF 20 LBS. PER ACRE.
9. IF AREAS ARE UNABLE TO BE DRILL SEEDED, BROADCAST SEED AND RAKE INTO SOIL. BROADCAST SEED AT DOUBLE THE RATE SPECIFIED.
10. HYDROMULCH OVER ALL DRILL SEEDED AREAS AND ROLL UNTIL SMOOTH.
11. HYDROSEEDING IS PROHIBITED.
12. CONTRACTOR IS RESPONSIBLE FOR ALL LAWN MAINTENANCE FOR 90 DAYS AFTER SUBSTANTIAL COMPLETION.
13. CONTRACTOR IS RESPONSIBLE FOR WEED CONTROL OVER ALL NEWLY SEEDED AREAS FOR THE FIRST FULL GROWING SEASON.

1 PLANTING & SEEDING PLAN

SCALE: 1" = 40'

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PLANTING PLAN

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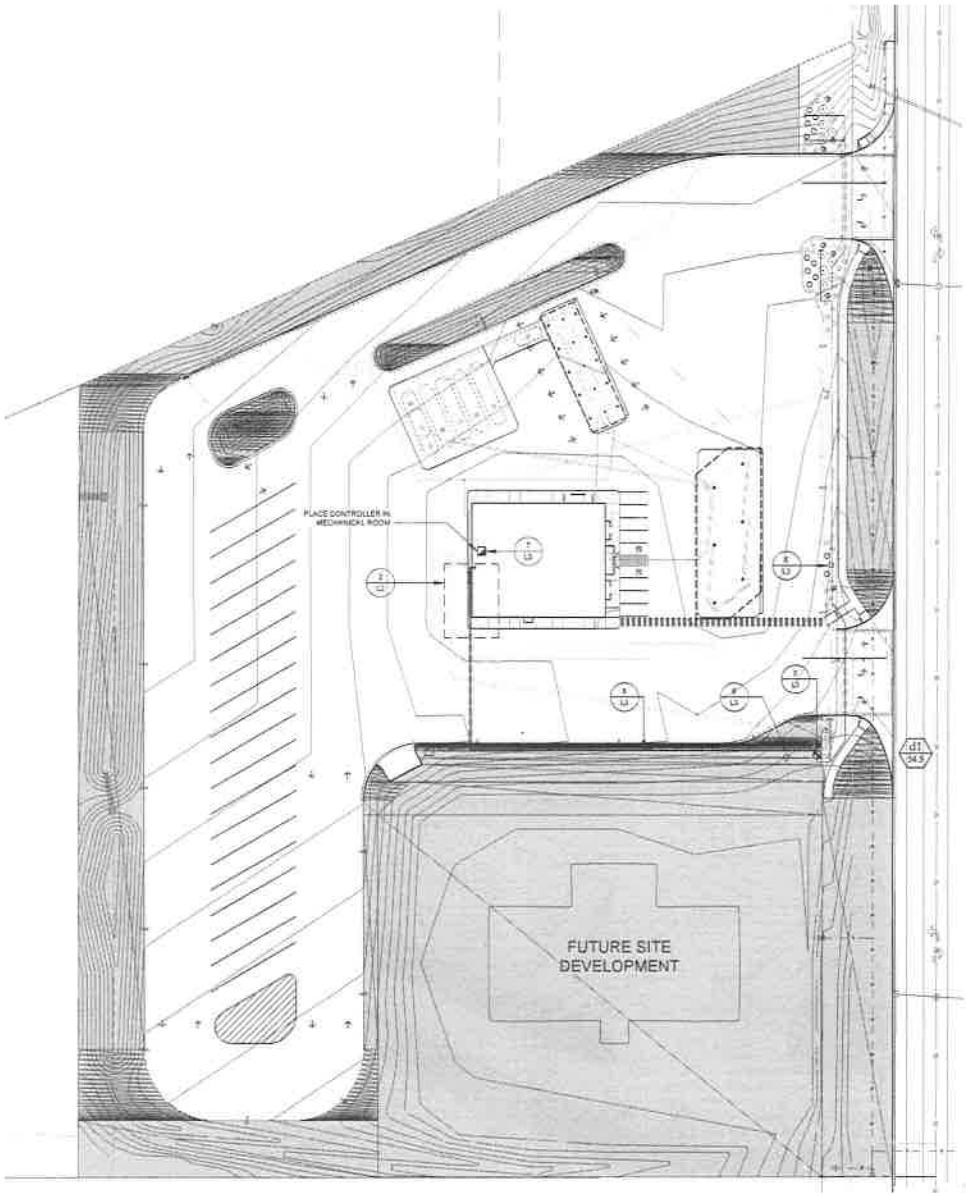
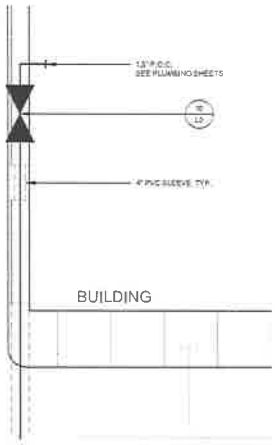


1 IRRIGATION PLAN

SCALE: 1" = 40'



2 POINT OF CONNECTION

NTS

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	SIZE	MANUF.	MODEL #
	DRIP ZONE CONTROL VALVE	1"	HUNTER	PCZ-101-40
	CONTROLLER	4 STATION	HUNTER	XC-400i
	PRESSURE VACUUM BREAKER	1"	WILKINS	720A
	MAINLINE DRAIN (FULL PORT GATE VALVE)	1"	NIBCO	N200116A
	MAINLINE	1"		CLASS 200 PVC
	SLEEVE LINES	4"		SCHEDULE 40 PVC
	DRIP LATERAL LINE	1"		CLASS 160 PE
NO SYMBOL	DRIP EMITTERS	0.5 GPH	HUNTER	HE-05
	LINE SIZE PIPE CAP & DRAIN		HUNTER	PLD-BV

45 / W — DRIP ZONE STATION NUMBER, CONTROLLER LETTER, GALLONS PER HOUR (GPH)

8 / IR2 — DETAIL NUMBER, SHEET NUMBER

PLANT DRIP EMITTER SCHEDULE

PLANT TYPE	PLANT QUANTITY	# OF EMITTERS / PLANT	SIZE
SHRUB	40	2	0.5 GPH
GRASSES & PERENNIALS	29	1	0.5 GPH

IRRIGATION NOTES

1. VERIFY ALL EXISTING AND PROPOSED SITE CONDITIONS, INCLUDING PLANTING, GRADING, BUILDING CONSTRUCTION, WATER DEVELOPMENT, AND SUPPLY, PRIOR TO COMMENCEMENT OF WORK. NOTE ANY SLEEVES AND IRRIGATION STUBS FOR FUTURE WORK.
2. LOCATE AND PROTECT ALL UNDERGROUND UTILITIES, CONDUITS, AND STRUCTURES. ANY DAMAGE INCURRED IS THE CONTRACTOR'S RESPONSIBILITY AT NO ADDITIONAL COST TO THE OWNER.
3. THE IRRIGATION CONTRACT INCLUDES THE SUPPLY AND INSTALLATION OF ALL MATERIALS AND EQUIPMENT FOR A COMPLETE, AUTOMATIC IRRIGATION SYSTEM. ANY ITEMS REQUIRED TO CONFORM WITH SUCH INTENT ARE CONSIDERED TO BE INCIDENTAL TO THE WORK.
4. THE IRRIGATION PLAN IS SCHEMATIC. FIELD-VERIFY ALL DIMENSIONS, EXISTING, AND PROPOSED CONDITIONS, AS REQUIRED TO PROVIDE ONE COMPLETE AND OPERABLE SYSTEM.
5. DO NOT WILLFULLY INSTALL THE SYSTEM WHEN OBVIOUS OBSTRUCTIONS, GRADE CHANGES AND SITE GEOMETRY EXIST. SUCH DIFFERENCES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE. IN THE EVENT NOTIFICATION IS NOT MADE, THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY NECESSARY REVISIONS.
6. REFER TO LANDSCAPE AND CIVIL PLANS WHEN LAYING OUT HEAD PLACEMENT AND TRENCHING.
7. CONFORM TO ALL LOCAL CODES REGARDING INSTALLATION.
8. IRRIGATION DESIGN IS BASED UPON HAVING 40 PSI AND 15 GPM AVAILABLE AT THE FURTHEST HEAD. VERIFY THE ACTUAL PSI AND GPM AVAILABILITY AND COMPATIBILITY WITH THE WATER SOURCE PRIOR TO INSTALLATION.
9. PROVIDE PVC IRRIGATION PIPE, 2-1/2" SIZE OR SMALLER IN CLASS 200 I.P.S.; PROVIDE 3" SIZE PIPE AND LARGER IN SCHEDULE 40.
10. PROVIDE 160 PSI 3406 POLYETHYLENE PIPE FOR DRIP IRRIGATION PIPE DOWNSTREAM FROM ELECTRIC VALVES. UTILIZE INSERT TYPE FITTINGS AND 'DETIKER' DOUBLE CLAMPS OR BLAZING SADDLE CONNECTIONS.
11. PROVIDE 4 INCH DIAMETER SCHEDULE 40 PVC FOR ALL ELECTRICAL AND IRRIGATION SLEEVES LOCATED UNDER PAVEMENT.
12. PROVIDE UF-14-1 DIRECT BURIAL CABLE WIRING FROM THE IRRIGATION CONTROLLER TO REMOTE CONTROL VALVES. RUNS IN EXCESS OF 800 FEET SHALL BE 12 GAUGE. PLACE ALL WIRE SPLICES IN VALVE BOXES AND MAKE CONNECTIONS WITH A DIRECT BURY SPLICE KIT. PROVIDE SLEEVES FOR WIRING UNDER ALL PAVED AREAS.
13. BURY ALL MAINLINE PIPE WITH A MINIMUM COVER OF 18 INCHES. BURY ALL LATERAL PIPE WITH A MINIMUM COVER OF 12 INCHES. PULLING OF PIPE 2 INCH DIAMETER OR LESS IS ACCEPTABLE, PROVIDING DEPTHS ARE ACHIEVED. BURY DRIP LATERALS TO ACHIEVE A MINIMUM COVER OF 10 INCH DEPTH. ALL DRIP TUBES WITH EMITTERS SHALL BE AT SURFACE OVER THE FABRIC, BUT UNDER THE MULCH.
14. SLOPE MAINLINE TO DRAIN.
15. LIMIT THE USE OF FITTINGS AND INSTALL LINE SIZE FITTINGS TO ENSURE MINIMUM FRICTION LOSS IN SYSTEM.
16. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN CONSENT FROM THE LANDSCAPE ARCHITECT.
17. ALL VALVES TO BE INSTALLED IN RECTANGULAR VALVE BOXES OF PROPER SIZE, DEPTH AND GRADE. PROVIDE VALVE BOX EXTENSIONS AS REQUIRED.
18. VERIFY WITH THE OWNER'S REPRESENTATIVE, THE FINAL LOCATION OF THE CONTROLLER, BACKFLOW PREVENTER AND CONNECTION TO WATER SOURCE TO MEET FIELD CONDITIONS. COORDINATE INSTALLATION WITH OWNER'S REPRESENTATIVE AND OTHER TRADES.
19. CONTRACTOR IS RESPONSIBLE FOR PERFORMING FIRST-YEAR WINTERIZATION AND SPRING START-UP PRIOR TO MAY 1ST, DURING THE ONE-YEAR WARRANTY PERIOD.
20. FINAL INSPECTION: DEMONSTRATE THE ENTIRE SYSTEM IN OPERATION TO THE OWNER'S REPRESENTATIVE, PROVING THAT ALL REMOVE CONTROL VALVES ARE PROPERLY FUNCTIONING, THAT ALL HEADS AND EMITTERS ARE PROPERLY ADJUSTED FOR RADIUS, ARC OF COVERAGE AND EMITTER LOCATION AS IT RELATES TO INDIVIDUAL PLANTS.
21. PRIOR TO FINAL PAYMENT THE CONTRACTOR SHALL PROVIDE TO THE OWNER'S REPRESENTATIVE AN AS-BUILT PLAN AND OWNER'S MANUALS. DURING THE COURSE OF THE INSTALLATION, THE CONTRACTOR MUST RECORD ALL CHANGES MADE TO THE IRRIGATION SYSTEM. THE CHANGES MUST BE MADE IN RED ON THE ORIGINAL PLAN.
22. WARRANTY THE IRRIGATION SYSTEM FOR A PERIOD OF ONE-YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. ANY SETTLEMENT THAT OCCURS DURING THIS TIME SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

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IRRIGATION PLAN

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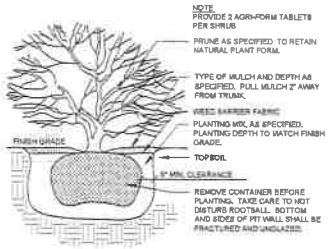

1 SHRUB
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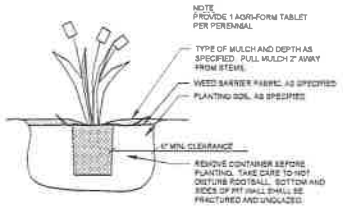

2 ORNAMENTAL GRASS PLANTING
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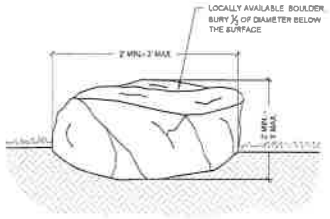
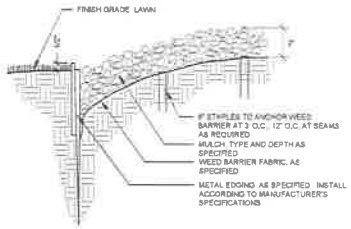


3 BOULDER PLACEMENT
NOT TO SCALE



4 METAL EDGE & MULCH
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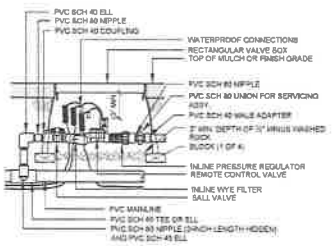
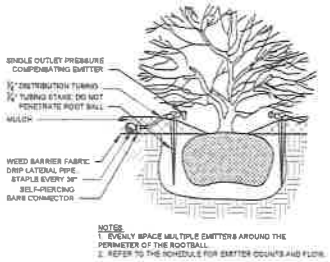
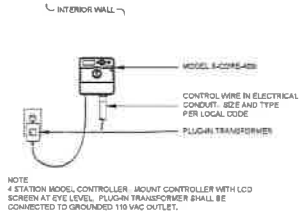


5 DRIP ZONE CONTROL
NOT TO SCALE



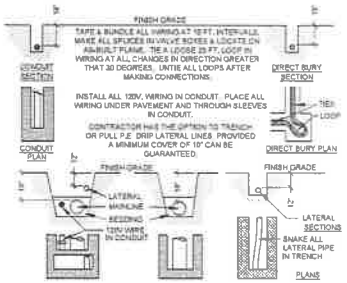
NOTES:
1. EVENLY SPACE MULTIPLE EMITTERS AROUND THE PERIMETER OF THE ROOTBALL.
2. REFER TO THE SCHEDULE FOR EMITTER COUNTS AND FLOW.

6 DRIP EMITTER PLACEMENT
NOT TO SCALE

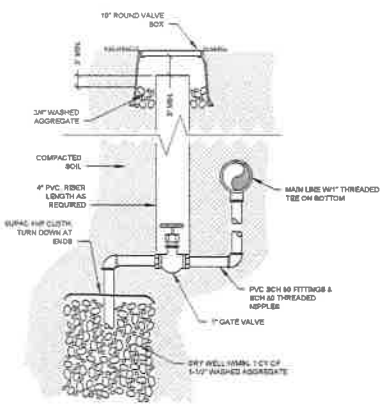


NOTE
4 STATION MODEL CONTROLLER. MOUNT CONTROLLER WITH LCD SCREEN AT EYE LEVEL. PLUG-IN TRANSFORMER SHALL BE CONNECTED TO GROUNDED 110 VAC OUTLET.

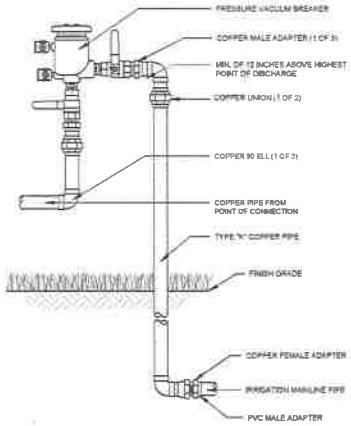
7 X-CORE CONTROLLER
NOT TO SCALE



8 TRENCH & BEDDING
NOT TO SCALE



9 MAIN LINE DRAIN
NOT TO SCALE



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. INSTALL BACKFLOW PREVENTION AS REQUIRED BY LOCAL CODES AND HEALTH DEPARTMENT. VERIFY LOCAL REQUIREMETNS PRIOR TO INSTALLATION.

10 PRESSURE VACUUM BREAKER
NOT TO SCALE

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DETAILS

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L3

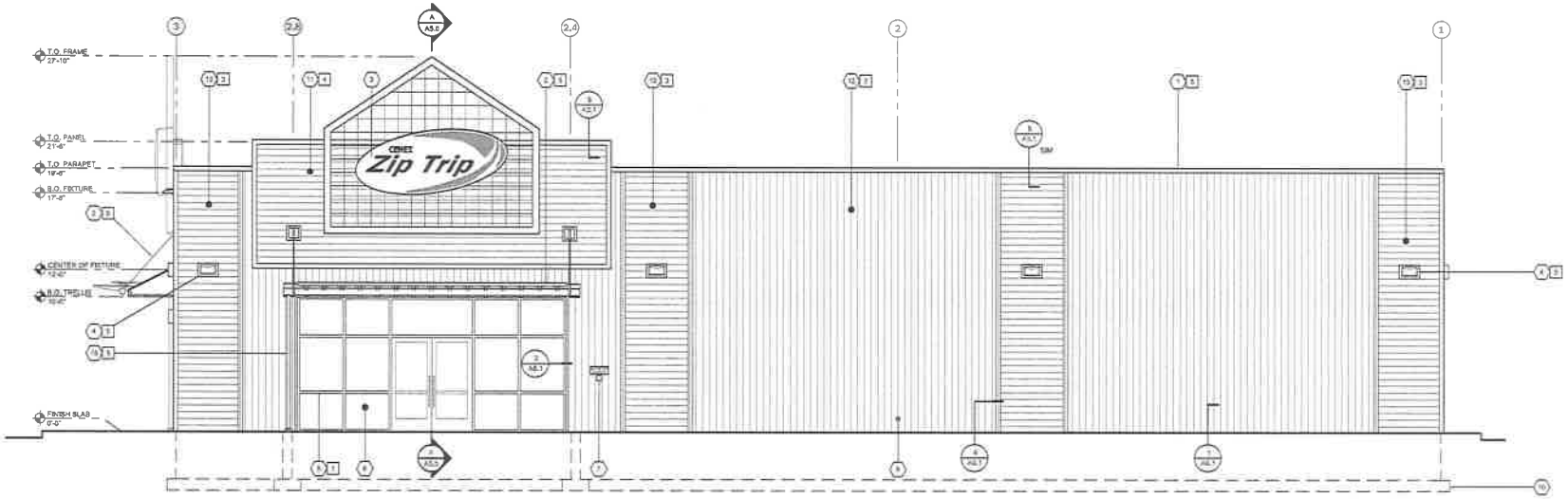
A A4.0 EAST ELEVATION
SCALE: 1/4" = 1'-0"

KEY NOTES

1. PRE-FINISHED METAL PARAPET CAP
2. DECORATIVE STEEL TRELLIS - SEE STRUCTURAL
3. ILLUMINATED SIGN FURNISHED AND INSTALLED BY OTHERS. G.C. TO COORDINATE AL ELEC. REQ'S
4. EXTERIOR UP-DOWN LIGHT - SEE ELECTRICAL. G.C. TO COORD. ALL BLKG. REQ'S
5. ALUMINUM STOREFRONT SYSTEM
6. 1" INSULATED, LOW-E, SOLAR SHARO GLAZING
7. EMERGENCY FUEL SHUT-OFF BUTTON
8. FROST-FREE HOSE BIBB
9. 10" WHITE VINYL ADDRESS NUMBERS
10. LINE OF FOOTING BELOW. SEE STRUCTURAL FOR MINIMUM FROST DEPTH
11. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-1
12. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-2
13. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-3
14. PRE-FINISHED METAL ROOF PANEL - MRP-1
15. PRE-FINISHED METAL DOWNSPOUT INTO 4" UNDERGROUND LINE. SEE CIVIL
16. PRE-FINISHED METAL SOFFIT PANEL - MSP-1

FINISH NOTES

1. BLACK ANODIZED ALUMINUM
2. METAL SALES, COLOR TO BE: BLACK KYNAR
3. METAL SALES, COLOR TO BE: BROWN KYNAR
4. METAL SALES, COLOR TO BE: FELT GREEN KYNAR
5. COLOR TO BE: BLACK



B A4.0 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATIONS

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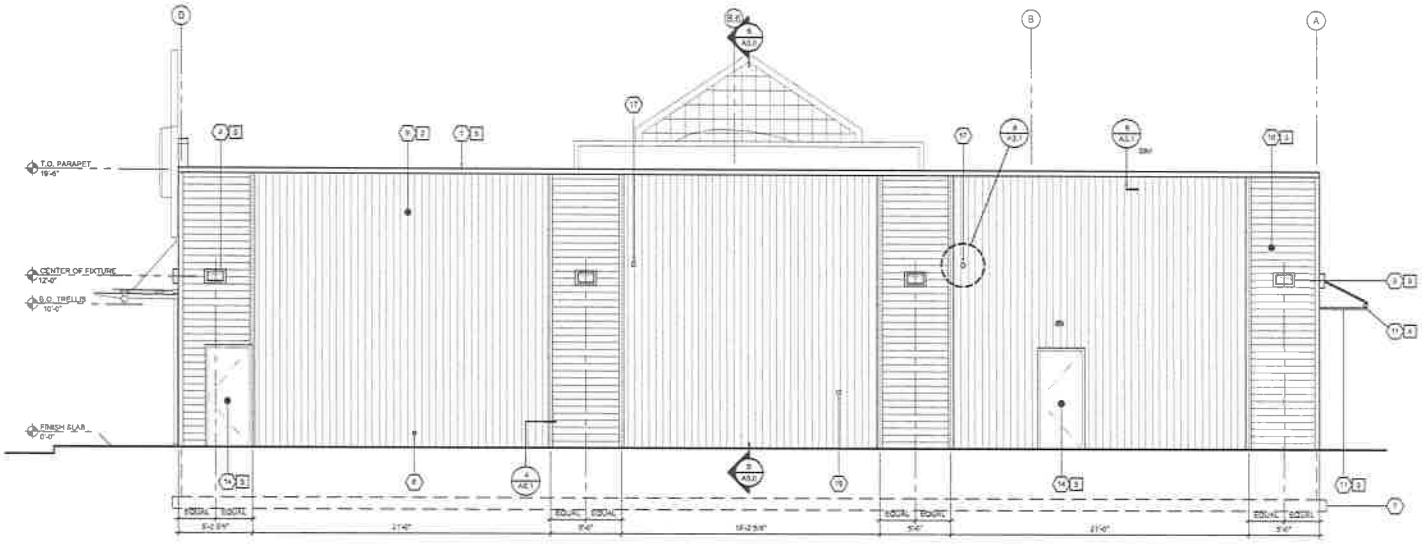
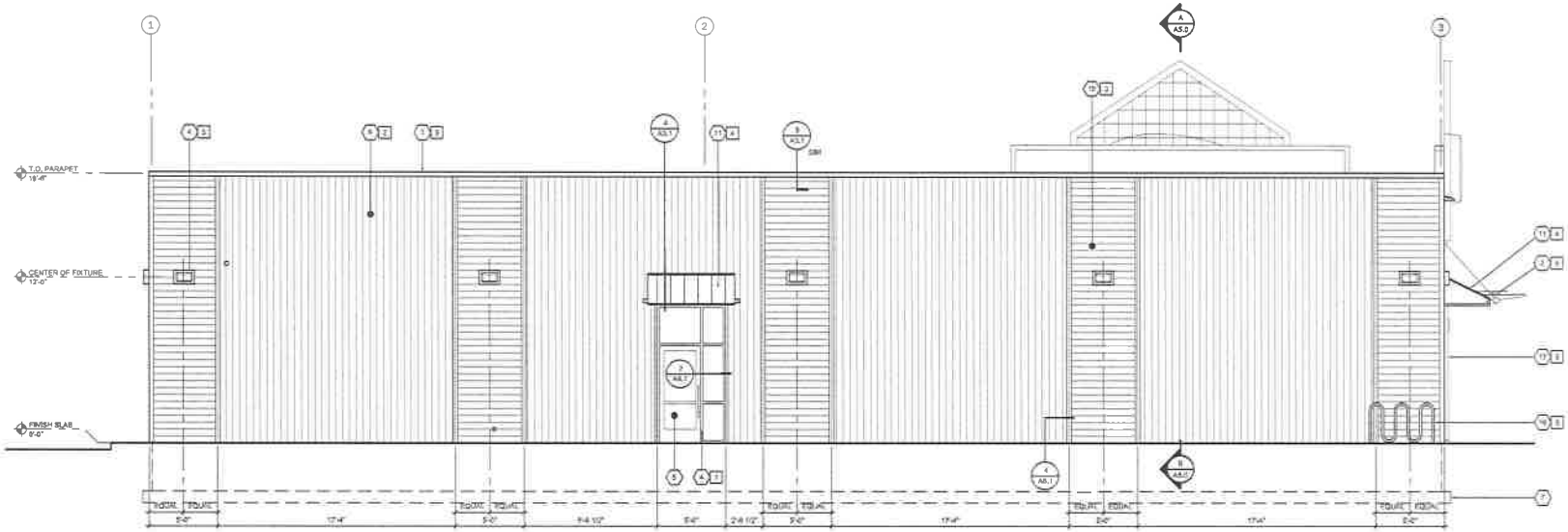


A A4.0 WEST ELEVATION

SCALE: 1/4" = 1'-0"



B A4.0 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"

KEY NOTES

1. PRE-FINISHED METAL PARAPET CAP
2. DECORATIVE STEEL TRELLIS - SEE STRUCTURAL
3. EXTERIOR UP-DOWN LIGHT - SEE ELECTRICAL, G.C. TO COORD. ALL BLKG. REQ'D
4. ALUMINUM STOREFRONT SYSTEM
5. 1" INSULATED, LOW-E, SOLAR SAFETY GLAZING
6. FROST-FREE HOSE BIBB
7. LINE OF FOOTING BELOW, SEE STRUCTURAL FOR MINIMUM FROST DEPTH
8. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-1
9. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-2
10. PRE-FINISHED METAL WALL PANEL & TRIM - MWP-3
11. PRE-FINISHED METAL ROOF PANEL - MRP-1
12. PRE-FINISHED METAL DOWNSPOUT INTO 4" UNDERGROUND LINE, SEE CIVIL
13. PRE-FINISHED METAL SOFFIT PANEL - MSP-1
14. HOLLOW METAL DOOR & FRAME
15. CO2 FILL-HOLE
16. STEEL RIKE RACK, SEE CIVIL
17. SMITH 1770 POLISHED BRONZE DOWNSPOUT NOZZLE (CALF TONGUE), SEE 8/A3.1

FINISH NOTES

1. BLACK ANODIZED ALUMINUM
2. METAL SALES, COLOR TO BE: BLACK KYNAR
3. METAL SALES, COLOR TO BE: BROWN KYNAR
4. METAL SALES, COLOR TO BE: FELT GREEN KYNAR
5. COLOR TO BE: BLACK

EXTERIOR ELEVATIONS

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Zip Trip

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A4.1

SANDERSON STEWART

TRAFFIC IMPACT STUDY

FOR

MILES CITY ZIP TRIP TRUCK STOP
BABER MEADOWS SUBDIVISION

MILES CITY, MONTANA

PREPARED FOR
CHS, INC.
16124 E. MARIETTA LANE
SPOKANE VALLEY, WA 99216

AUGUST 2015
15016.01

MONTANA
JOSEPH M. STASZCUK
28336PE
LICENSED
PROFESSIONAL ENGINEER

SANDERSON STEWART

TRAFFIC IMPACT STUDY

MILES CITY ZIP TRIP TRUCK STOP

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INTRODUCTION

This traffic impact study summarizes the potential impacts of the proposed construction (relocation) of a Zip Trip truck stop and other developable properties in the proposed Baber Meadows Subdivision in Miles City, MT. The purpose of this traffic impact study (TIS) is to assess the impacts that this development may have on the surrounding transportation system and to provide recommendations to mitigate any such impacts. The methodology and analysis procedures used in this study employ the latest technology and nationally accepted standards in the area of site development and transportation impact assessment. Recommendations made in this report are based on professional judgment and these principles.

SITE LOCATION AND DESCRIPTION

Baber Meadows Subdivision is to be located in the south ½ of the northeast ¼ of Section 3, Township 7 North, Range 47 East in Miles City, Custer County, Montana. The property is situated along the west side of Haynes Avenue (MT Highway 59) approximately 700 feet south of the Interstate 94 eastbound ramps intersection. The Zip Trip truck stop is proposed on Lot 1 (6.281 acres) of Baber Meadows Subdivision. Lot 2 (1.997 acres) will be held for future development of a restaurant, hotel or other commercial facility. Lot 3 (12.920 acres), which makes up the remainder of Baber Meadows Subdivision, will be held by the original property owners (the Baber family) and may be developed in the future, but there are no plans for development as of this writing. Figure 1 on the following page provides a vicinity map for the proposed subdivision and also shows the lot layout. Figure 2 on page 3 shows the proposed site layout for the Zip Trip truck stop.

The proposed Zip Trip truck stop will consist of a 6,000 square foot convenience store building, 12 standard fueling positions, and 6 tractor-trailer fueling positions. The site also provides for 17 customer parking spaces at the convenience store and 24 tractor-trailer parking stalls in a parking area to the west of the building (see Figure 2).

EXISTING CONDITIONS

Streets & Intersections

The Montana Department of Transportation (MDT) currently has a project in design to construct roundabouts for the Interstate 94 eastbound and westbound ramp intersections with Haynes

FIGURE 1
SITE LOCATION

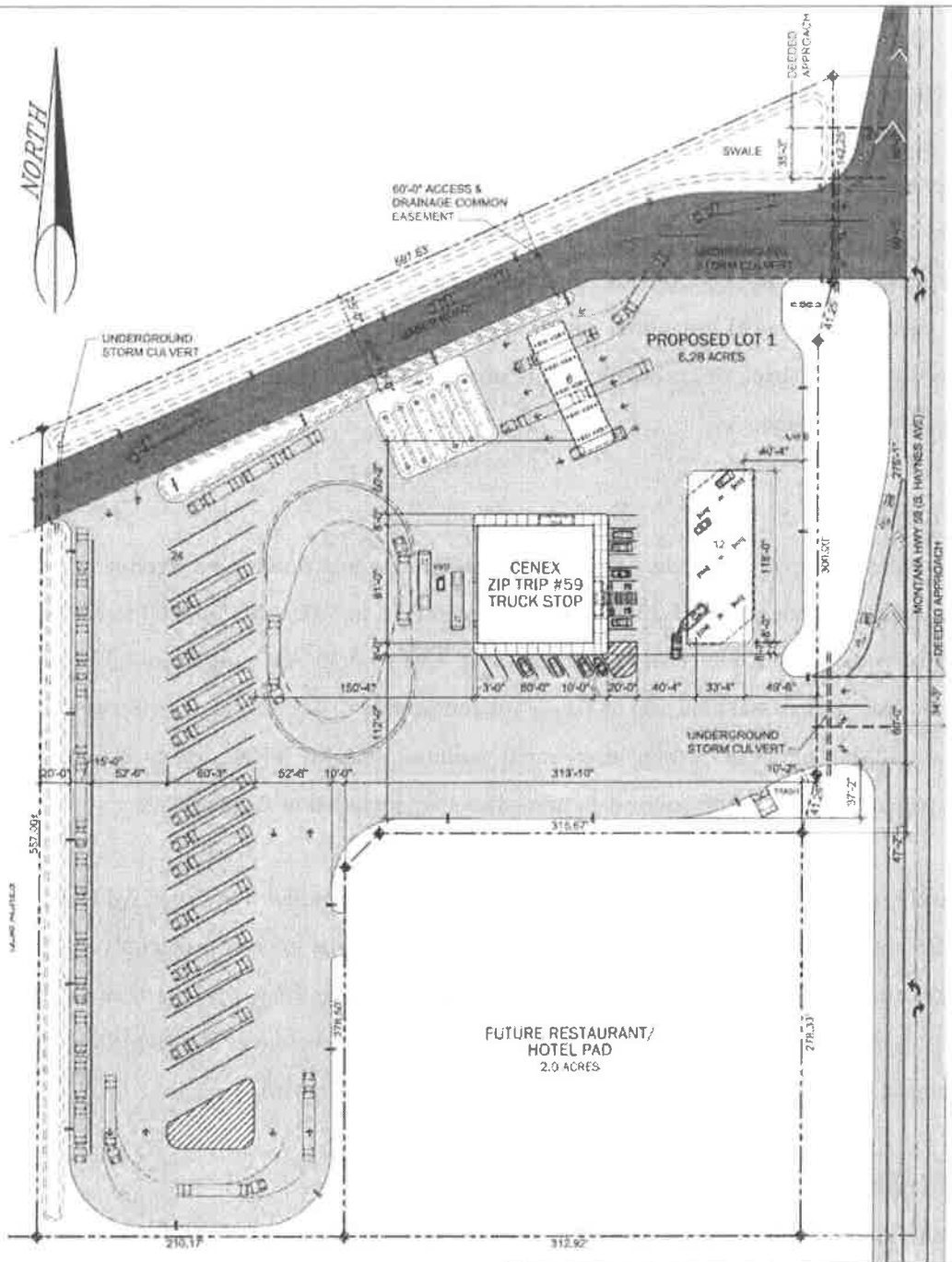

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FIGURE 2

SITE LAYOUT

Avenue. As such, MDT stipulated that it would only be necessary to evaluate the proposed access intersections for Baber Meadows Subdivision on Haynes Avenue for this study.

Haynes Avenue (MT Highway 59) is classified as a Principal Arterial by MDT and the City of Miles City follows that same classification structure. In the vicinity of the proposed subdivision, Haynes Avenue carries a three-lane section with 12-ft driving lanes, a 17-ft two-way left-turn lane (TWLTL), on-street parking and curb and gutter along both shoulders. The total width of the street is approximately 61 feet (back of curb to back of curb). The speed limit is posted at 45 mph for this stretch of Haynes Avenue.

Traffic Volumes

Sanderson Stewart performed bi-directional traffic volume counts on Haynes Avenue in the vicinity of the proposed subdivision on Wednesday, July 8 from 6:30 to 9:00 AM and 4:00 to 6:30 PM. The AM and PM peak hours were found to occur from 7:30 to 8:30 AM and from 4:30 to 5:30 PM. Applying the MDT seasonal adjustment factor for the month of July, Sanderson Stewart calculated the AM and PM peak hour turning movement volumes that are illustrated in Figure 3 on the following page. Detailed traffic count data worksheets are included in Appendix A.

Average daily traffic (ADT) counts were not performed for this study. However, MDT has a short term traffic count site on Haynes Avenue in the general vicinity of the project. For 2014, they reported an annual average daily traffic (AADT) of 3940 vehicles/day (vpd) at that location. It's worth noting that the AADTs reported for 2011-2013 were all between 5000 vpd and 5400 vpd. The reason for the substantial reduction in AADT for 2014 is unknown.

TRIP GENERATION

An accurate estimate of site-generated traffic must be made in order to analyze the impacts of a new development. The industry standard reference for projecting trip generation is *Trip Generation, 9th Edition* (trip generation manual), published by the Institute of Transportation Engineers (ITE). The trip generation manual has a category called Truck Stop (Land Use Code 950). However, the data for that category is very limited at this point in time and only available for the PM peak hour (between 4 and 6 p.m.). After discussing the approach with MDT, Sanderson Stewart performed AM and PM peak trip generation counts for a large and relatively new Town Pump truck stop

FIGURE 3

EXISTING (2015) PEAK-HOUR TRAFFIC VOLUMES

complex located in Lockwood, MT at the Johnson Lane interchange. The Town Pump facility is larger than the proposed Zip Trip truck stop in Miles City and it also contains a McDonald's restaurant complete with a drive-thru. Since the Zip Trip project includes an out lot that is expected to be developed with a restaurant or hotel, it was decided to utilize the Town Pump facility as the count site and utilize the resulting trip generation count data to project site trips for both the truck stop and the out lot. Note that the counts were conducted from 7-9 AM and 4-6 PM so that the data could be submitted to ITE for use in an upcoming edition of the trip generation manual. Please also note that no trips were projected for Lot 3 in Baber Meadows Subdivision since indications are that no development is planned for that property in the near future. The trip generation count sheets for this study are located in Appendix B.

Trip generation data provides an estimate of the total number of trips that would be generated by a proposed site or subdivision. However, in order to estimate the net number of new primary origin/destination trips, adjustments must often be made to account for internal capture trips, pass-by trips and trips made by alternate modes. In this case, the truck stop land use would be likely to generate both internal capture and pass-by trips. However, because the trip generation count was performed at a facility that included a restaurant, it was assumed internal capture trips were already accounted for in that data. As such, no adjustment for internal capture was necessary.

A truck stop and restaurant are the type of facilities that would typically generate a large percentage of pass-by trips. Pass-by trips are an important distinction because they represent vehicles that are already in the traffic stream on the adjacent streets or highways, so they are not new trips that are only in the system because they are on their way to or from the project site, but they are new trips into the project site. The Zip Trip truck stop in Miles City is expected to generate a substantial amount of pass-by trips from traffic on both I-94 and Haynes Avenue. Sanderson Stewart utilized the procedures outlined in the ITE *Trip Generation Handbook, 3rd Edition* to calculate pass-by trips. Given the proposed location of the new Zip Trip truck stop, it is not expected that alternate mode trips will make up a significant percentage of the typical stream. As such, for the purposes of being conservative, alternate mode trips were assumed to be negligible.

Table 1 on the following page contains the results of the trip generation calculations for this study. The truck stop and out lot are projected to generate approximately 89 net primary trips (46 entering

Table 1. Miles City - Zip Trip Truck Stop Trip Generation Summary

Land Use Category		Independent Variable		AM Peak Hour			PM Peak Hour		
Name	Code	Intensity	Units	enter	exit	total	enter	exit	total
Truck Stop[1]	N/A	N/A	N/A	121	113	234	102	98	200
Pass-by Trips*				75	70	145	63	61	124
NET PRIMARY TRIPS				46	43	89	39	37	76

[1] Projection based on empirical data collected on July 29, 2015 at Town Pump Truck Stop in Lockwood, MT

**Trip Generation Handbook, 3rd Edition*, Institute of Transportation Engineers, 2014

and 43 exiting) during the AM peak hour and 76 trips (39 entering and 37 exiting) during the PM peak hour. The remaining trips would be pass-by trips from I-94 or Haynes Avenue. For comparison's sake, the application of the PM peak hour average rate from the trip generation manual (Land Use Category 950 - Truck Stop) would have yielded a gross trip generation total of 83 trips (as compared to 200 trips) based on a store size of approximately 6100 SF.

TRIP DISTRIBUTION

Trip distribution is an estimate of site-generated trip origin and destination locations, which can be determined by several methods such as computerized travel demand models or simple inspection of existing traffic patterns within the project area. For this study, the trip distribution was primarily based on the distribution of existing traffic volumes on Haynes Avenue and for I-94 and the engineer's judgement of minor traffic shifts with the proposed development in place. The projected trip distribution for the proposed development is illustrated in Figure 4 (next page).

TRAFFIC ASSIGNMENT

Traffic assignment is the procedure whereby site-generated vehicle trips are assigned to study area streets, intersections, and the site access driveways. The assignment of site-generated traffic is based on the calculated trip distribution, the physical attributes of the development site, and the surrounding street system. Based on this approach, the site-generated trips were assigned to the study area roadway network as illustrated in Figure 4. Note that negative assignments for the northbound thru movement at the south site access intersection result from pass-by trip assignments whereby existing thru movements are converted to ingress and egress movements at the project site.

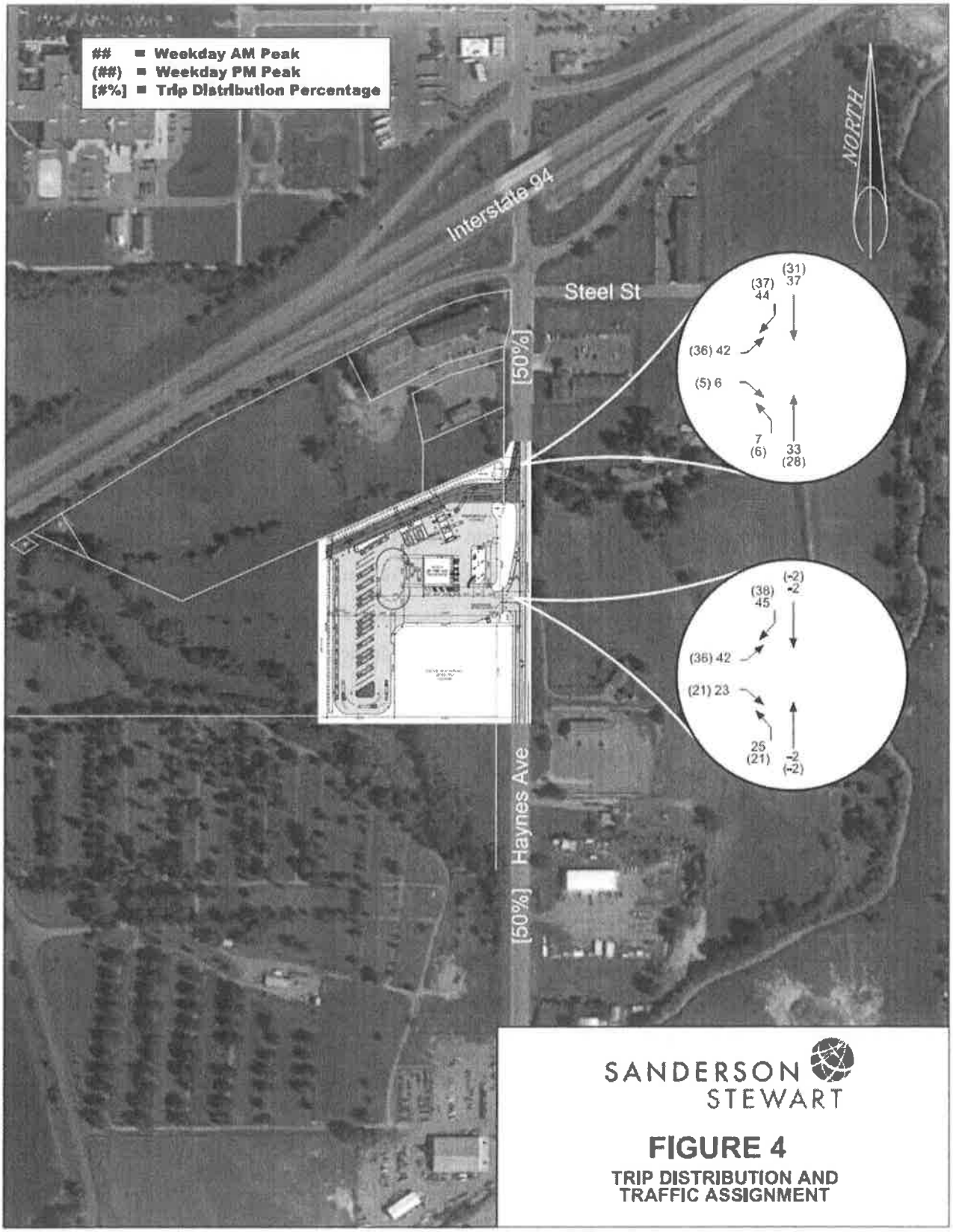

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FIGURE 4

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

TRAFFIC IMPACTS

Traffic Volumes

Future conditions traffic analyses for this study were performed for the Existing Year (2015) + Site Traffic scenario. The calculated traffic volumes for that scenario provide an estimate of the traffic demand forecasted to be on the street network at the time period when site development is complete. The combination of existing background traffic volumes and the site-generated traffic volumes is illustrated in Figure 5 (next page).

Intersection Capacity

Capacity calculations were performed for the study area intersections using Highway Capacity Software (HCS2010), which is based on the 2010 Highway Capacity Manual (HCM2010) (Transportation Research Board, 2010) methodologies. The HCM2010 defines level of service (LOS) as "a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience." LOS for an intersection is a qualitative measure of performance with values ranging from LOS A, indicating good operation and low vehicle delays, to LOS F, which indicates congestion and longer vehicles delays. MDT generally considers LOS C as the minimum standard for acceptable peak hour intersection operations.

Table 2 on page 11 shows the results of the capacity calculations performed for Existing Year (2015) + Site Traffic conditions. These results show that all approaches for both of the proposed site access intersections project to operate at LOS B or better with negligible queuing during both the AM and PM peak hours. Note that these calculations assumed a three-lane section (with a two-way left-turn lane) on Haynes Avenue and separate right- and left-turn bays on the site access approaches. Detailed capacity calculation worksheets are attached in Appendix C.

Auxiliary Lane Warrants

Sanderson Stewart evaluated right-turn warrants for both site access intersections using the MDT Guidelines for Right-Turn Lanes criteria contained in Chapter 28 of the Traffic Engineering Manual. Based on the speed limit for the Haynes Avenue corridor in this area and the projected traffic

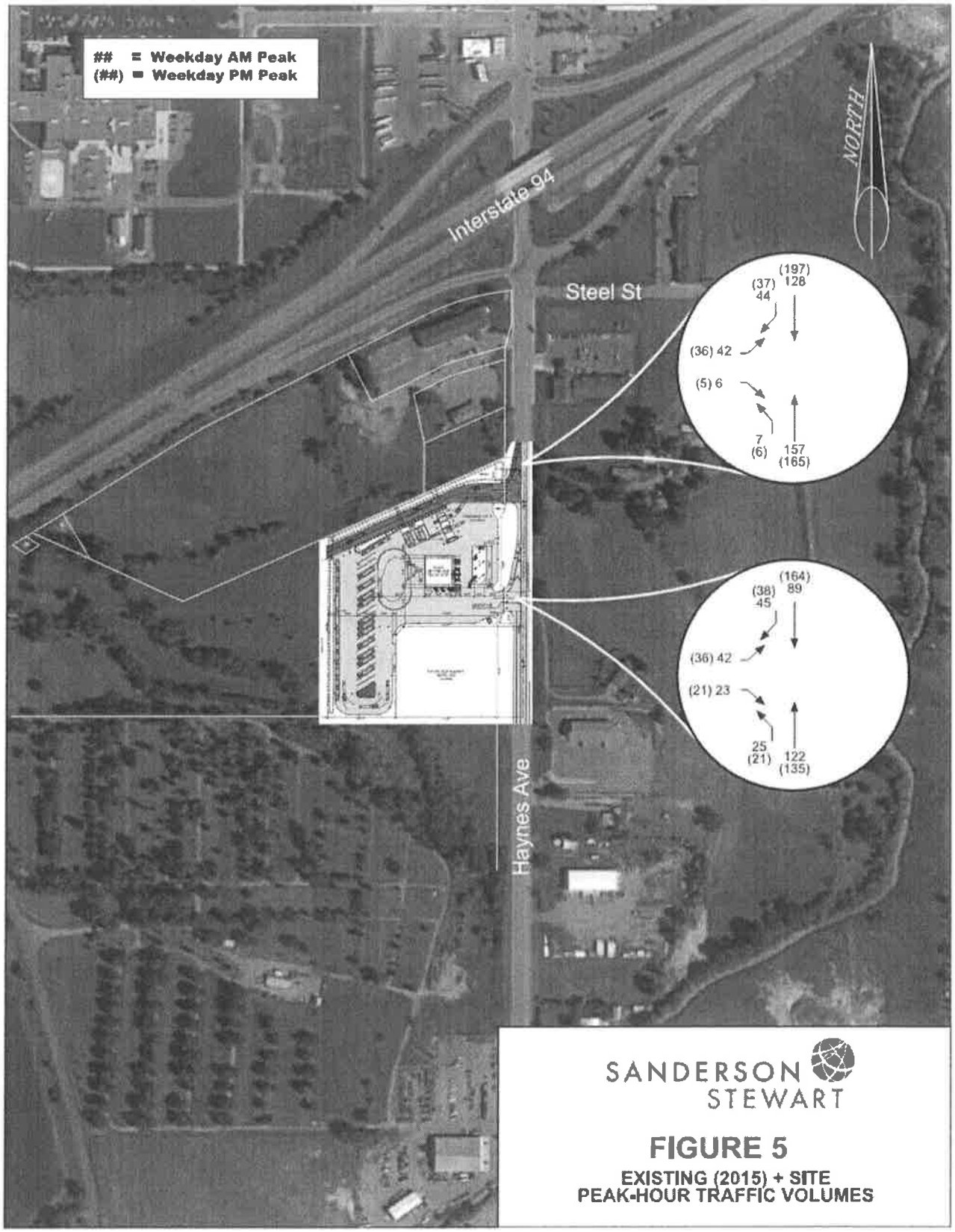

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FIGURE 5

EXISTING (2015) + SITE PEAK-HOUR TRAFFIC VOLUMES

Table 2. Capacity Calculation Summary

Intersection	Approach	Existing (2015) + Site Traffic					
		Morning Peak			Afternoon Peak		
		Avg Delay (s/veh)	LOS	Max Queue (veh)	Avg Delay (s/veh)	LOS	Max Queue (veh)
Intersection Control		*One-Way Stop Control (EB)*					
Haynes Avenue & North Site Access	EB	11.5	B	1	12.4	B	1
	NB	7.7	A	1	8.0	A	1
	SB	--	--	--	--	--	--
Intersection Control		*One-Way Stop Control (EB)*					
Haynes Avenue & South Site Access	EB	10.7	B	1	11.7	B	1
	NB	7.6	A	1	7.9	A	1
	SB	--	--	--	--	--	--

volumes at the site access intersections, right-turn lanes are not warranted for the either site access intersection. Copies of the auxiliary turn lane warrant worksheets can be found in Appendix D.

Queue Storage Analysis

The capacity analysis indicates that all approaches to the study area intersections project to have a maximum queue of one vehicle. However, the site is expected to experience a lot of tractor-trailer traffic, which will increase queues lengths at times due not only to the size of the vehicles but also the slow acceleration capabilities of those type of vehicles. The proposed site layout provides a long paved area for queue storage on both approaches such that a queue of several hundred feet could queue back onto the site without impacting site circulation. It is not anticipated that queue storage will be a problem for this site even as site traffic volumes grow in the future.

Site Access

Access to the truck stop and out lot sites (as well as future access to the Lot 3 remainder parcel) is proposed via two approaches on Haynes Avenue. The existing parcel has two deeded 40-ft approaches in similar locations. The Owner proposed to relocate those approaches slightly and reconstruct them to be wider (60 feet). Sanderson Stewart and the Owner participated in a conference call with MDT earlier this year to discuss access to the property, at which point in time MDT was in agreement with the proposal to move the approaches slightly and widen them.

The terrain in this area along Haynes Avenue is generally flat. As such, you can see for long distances to the north and south from the proposed locations of the approaches. There are existing overhead power lines along the west edge of Haynes Avenue, but they are set back nearly 30 feet from the back of curb, so they should not present a significant sight obstruction for minor approach vehicles.

Site Circulation & Parking

The proposed Zip Trip site as it is currently designed would provide for excellent site circulation. The dedicated truck parking area is located at the rear of the site away from the convenience store building and the fuel pumps. The site is designed with wide driving aisles and provides a loop around the truck parking areas. The City of Miles City indicated that the allotted parking is adequate relative to their current standards.

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to evaluate traffic impacts related to the construction (relocation) of a Zip Trip truck stop and other developable properties in the proposed Baber Meadows Subdivision in Miles City, MT. Since ITE trip generation data for truck stops is not readily available at this time for the AM peak hour and is limited for the PM peak, Sanderson Stewart performed a trip generation count at a similar truck stop/restaurant facility located just off I-90 in Lockwood, MT and calculated site-generated trips using that data. Since the facility in Lockwood contained a McDonald's restaurant and the truck stop itself was larger in terms of fueling positions, it was assumed for the purposes of this study that the resulting data would encompass both the Zip Trip truck stop and the adjacent out lot.

Intersection capacity calculations were performed for the proposed site access intersections based on projected turning movement volumes that included background traffic and site access trips. The capacity analysis showed that both site access intersections would operate very well with no projected queuing or LOS problems. Auxiliary right-turn lane warrants were evaluated based on MDT criteria, but neither intersection was shown to warrant such improvements based on the traffic volume projections. Evaluations of queue storage, site circulation, parking and site distance were

also conducted and it was found that the proposed site layout is satisfactory relative to local and National design standards in all cases. Based on this analysis, it is expected that the site would function well as proposed.

Recommendations

Although it was shown that auxiliary right-turn lane warrants would not be met based on the traffic volume projections, a relatively small increase in site-generated trips would cause the warranting criteria to be met for at least the north approach. Furthermore, if Lot 3 of Baber Meadows Subdivision were ever to be developed, access to Haynes Avenue would occur via the north approach. Lastly, that approach will be utilized by a large number of slower-moving tractor-trailer vehicles that would cause delay for trailing southbound thru vehicles if the southbound right-turn movement was to be made form a shared lane. As such, Sanderson Stewart recommends that a right-turn deceleration lane is constructed at the north site access approach. The deceleration lane should be designed with taper rates, deceleration rates, signing, and striping consistent with MDT standards.

The south approach may eventually be the more heavily utilized of the two depending upon what is developed on the adjacent out lot and whether or not Lot 3 is ever developed, but it will also most likely never realize the utilization by slow-moving heavy vehicles that the north approach will. As such, a right-turn deceleration lane is not necessary for the south approach.

Although the site access approaches are private, stop signs and painted stop bars should be considered at both locations to reinforce traffic safety. All traffic-related improvements for this project should be installed per City of Miles City, MDT, American Association of State Highway Transportation Officials (AASHTO) and Manual on Uniform Traffic Control Devices (MUTCD) standards.

Finally, if plans are brought forward in the future for the development of Lot 3 of Baber Meadows Subdivision, Sanderson Stewart recommends that a traffic impact study update is required as a part of that process. In particular, the north site access should be re-evaluated at that time to ensure that safe and efficient traffic operations will be maintained with additional site traffic utilizing that approach.

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APPENDIX A

TRAFFIC VOLUME DATA

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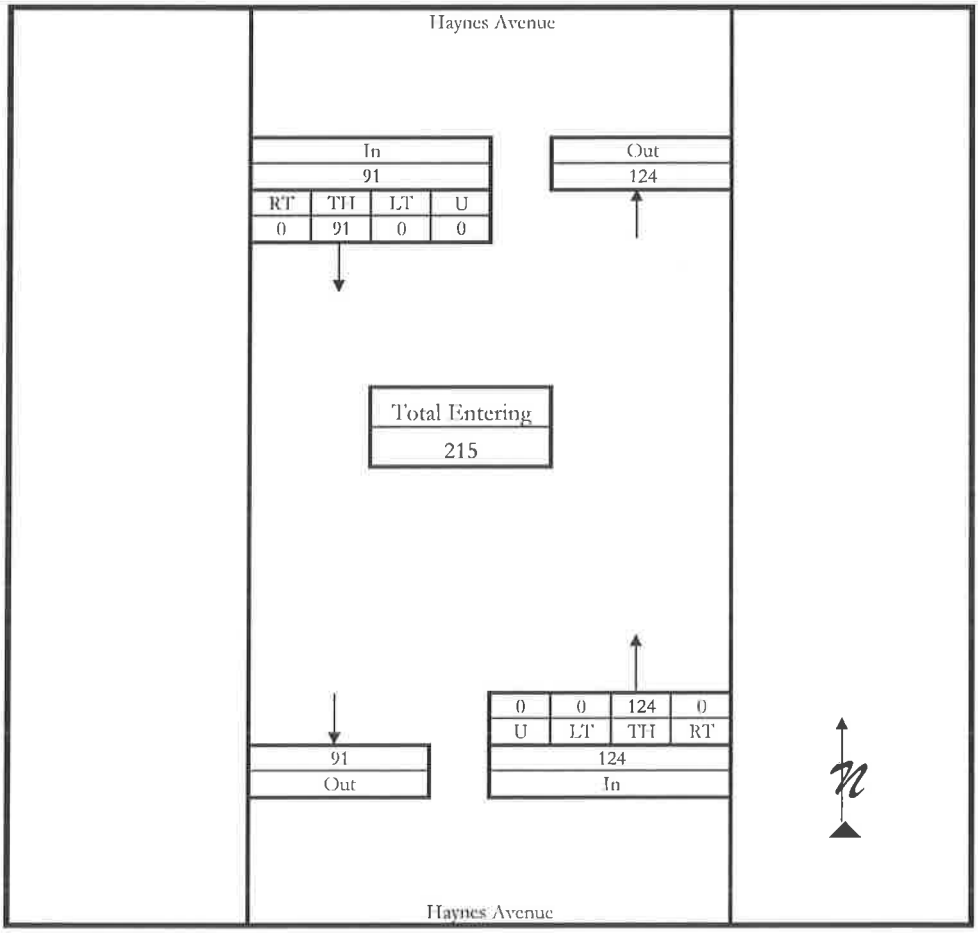
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	E. Murnin	Intersection:	
Agency/Company:	Sanderson Stewart		
Date Performed:	Wednesday, July 8, 2015	Jurisdiction:	City of Miles City
Count Time Period:	AM Peak Hour (7:35 - 8:35 AM)		
Project Number:	15016.01	Project Description:	Zip Trip
North/South Street:	Haynes Avenue	East/West Street:	

Vehicle Volumes and Adjustments

	Haynes Avenue Southbound					Haynes Avenue Northbound															Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
Factor	0.78	0.78	0.78	0.78		0.78	0.78	0.78	0.78		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00		
7:35 AM	0	20	0	0	20	0	36	0	0	36	0	0	0	0	0	0	0	0	0	0	56
7:50 AM	0	27	0	0	27	0	27	0	0	27	0	0	0	0	0	0	0	0	0	0	54
8:05 AM	0	25	0	0	25	0	34	0	0	34	0	0	0	0	0	0	0	0	0	0	59
8:20 AM	0	19	0	0	19	0	27	0	0	27	0	0	0	0	0	0	0	0	0	0	46
Grand Total	0	91	0	0	91	0	124	0	0	124	0	0	0	0	0	0	0	0	0	0	215
Medium Truck %	0.0	4.4	0.0	0.0	4.4	0.0	3.2	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	4.4	0.0	0.0	4.4	0.0	2.4	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Truck %	0.0	8.8	0.0	0.0	8.8	0.0	5.6	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	42.3	0.0	0.0	42.3	0.0	57.7	0.0	0.0	57.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PHF	0.84	0.84	0.84			0.86	0.86	0.86			0.00	0.00	0.00			0.00	0.00	0.00			0.91



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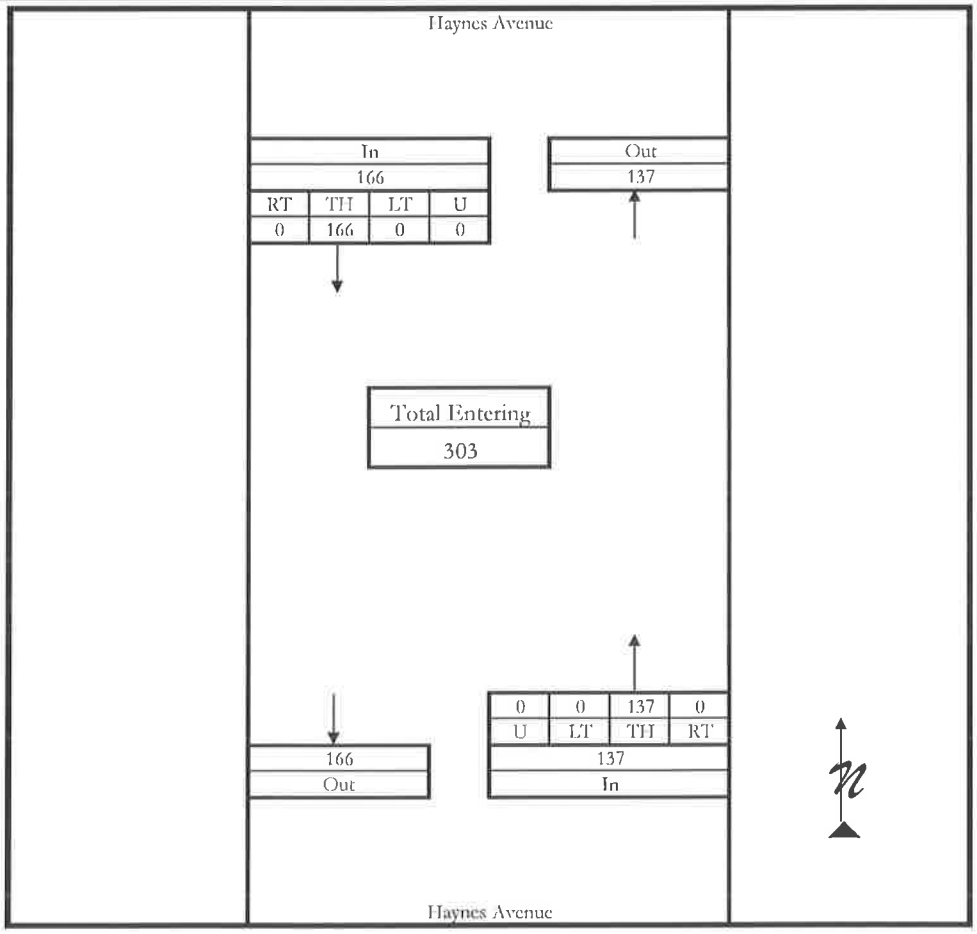
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

General Information

Counted By:	E. Murnin	Intersection:	
Agency/Company:	Sanderson Stewart		
Date Performed:	Wednesday, July 8, 2015	Jurisdiction:	City of Miles City
Count Time Period:	PM Peak Hour (4:35 - 5:35 PM)		
Project Number:	15016.01	Project Description:	Zip Trip
North/South Street:	Haynes Avenue	East/West Street:	

Vehicle Volumes and Adjustments

	Haynes Avenue Southbound					Haynes Avenue Northbound															Int.
Start Time	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Right	Thru	Left	U-turn	Total	Total
Factor	0.78	0.78	0.78	0.78		0.78	0.78	0.78	0.78		1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00		
4:35 PM	0	34	0	0	34	0	28	0	0	28	0	0	0	0	0	0	0	0	0	0	62
4:50 PM	0	36	0	0	36	0	41	0	0	41	0	0	0	0	0	0	0	0	0	0	77
5:05 PM	0	59	0	0	59	0	34	0	0	34	0	0	0	0	0	0	0	0	0	0	93
5:20 PM	0	37	0	0	37	0	34	0	0	34	0	0	0	0	0	0	0	0	0	0	71
Grand Total	0	166	0	0	166	0	137	0	0	137	0	0	0	0	0	0	0	0	0	0	303
Medium Truck %	0.0	1.2	0.0	0.0	1.2	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Heavy Truck %	0.0	1.8	0.0	0.0	1.8	0.0	3.6	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Truck %	0.0	3.0	0.0	0.0	3.0	0.0	5.8	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	54.8	0.0	0.0	54.8	0.0	45.2	0.0	0.0	45.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PHF	0.70	0.70	0.70			0.84	0.84	0.84			0.00	0.00	0.00			0.00	0.00	0.00			0.81



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APPENDIX B

TRIP GENERATION DATA

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VEHICLE TRIP GENERATION COUNT FORM

Date: 7/29/15 Counter: D. J. Clark

Site/Address: Town Pump Truck Stop - Lockwood, MT AM Peak Period (7-9 AM)

		Cars/Light Trucks	Motorcycles	Heavy Vehicles*	TOTALS
7:00 AM to 7:15 AM	Entering	26	0	8	34
	Exiting	24	0	2	26
7:15 AM to 7:30 AM	Entering	25	0	9	34
	Exiting	26	0	2	28
7:30 AM to 7:45 AM	Entering	26	0	7	33
	Exiting	30	0	5	35
7:45 AM to 8:00 AM	Entering	25	0	3	28
	Exiting	19	1	6	26
8:00 AM to 8:15 AM	Entering	25	0	4	29
	Exiting	19	0	5	24
8:15 AM to 8:30 AM	Entering	28	0	3	31
	Exiting	22	0	6	28
8:30 AM to 8:45 AM	Entering	32	0	11	43
	Exiting	25	0	3	28
8:45 AM to 9:00 AM	Entering	26	0	5	31
	Exiting	26	0	2	28

* Includes tractor-trailers, buses, motorhomes and other oversized vehicles/equipment

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VEHICLE TRIP GENERATION COUNT FORM

Date: 7-29-15 Counter: Kevin Marsich

Site/Address: Town Pump Truck Stop - Lockwood, MT PM Peak Period (4-6 PM)

		Cars/Light Trucks	*Motorcycles*	*Heavy Vehicles**	*TOTALS*
4:00 PM to 4:15 PM	Entering	18	0	5	21
	Exiting	18	0	6	21
4:15 PM to 4:30 PM	Entering	18	0	4	22
	Exiting	19	0	6	25
4:30 PM to 4:45 PM	Entering	19	0	7	26
	Exiting	17	0	6	23
4:45 PM to 5:00 PM	Entering	14	0	3	17
	Exiting	18	0	7	25
5:00 PM to 5:15 PM	Entering	25	0	7	32
	Exiting	14	0	5	19
5:15 PM to 5:30 PM	Entering	21	0	6	27
	Exiting	24	0	7	31
5:30 PM to 5:45 PM	Entering	14	0	5	19
	Exiting	12	0	4	16
5:45 PM to 6:00 PM	Entering	21	1	5	27
	Exiting	22	1	4	27

* Includes tractor-trailers, buses, motorhomes and other oversized vehicles/equipment

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APPENDIX C

CAPACITY CALCULATIONS – EXISTING + SITE

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	J. Staszcuk
Agency/Co.	Sanderson Stewart
Date Performed	8/3/2015
Analysis Time Period	AM Peak Hour

Site Information

Intersection	North Site Access & Haynes Ave
Jurisdiction	MDT
Analysis Year	Existing (2015) + Site

Project Description

East/West Street: North Site Access | North/South Street: Haynes Avenue

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	157			128	44
Peak-Hour Factor, PHF	0.86	0.86	1.00	1.00	0.84	0.84
Hourly Flow Rate, HFR (veh/h)	8	182	0	0	152	52
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	42		6			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	46	0	6	0	0	0
Percent Heavy Vehicles	50	0	50	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	8					46		6
C (m) (veh/h)	1344					583		755
v/c	0.01					0.08		0.01
95% queue length	0.02					0.26		0.02
Control Delay (s/veh)	7.7					11.7		9.8
LOS	A					B		A
Approach Delay (s/veh)	--	--				11.5		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	J. Staszcuk
Agency/Co.	Sanderson Stewart
Date Performed	8/3/2015
Analysis Time Period	PM Peak Hour

Site Information

Intersection	North Site Access & Haynes Ave
Jurisdiction	MDT
Analysis Year	Existing (2015) + Site

Project Description

East/West Street: North Site Access | North/South Street: Haynes Avenue

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	165			197	37
Peak-Hour Factor, PHF	0.84	0.84	1.00	1.00	0.70	0.70
Hourly Flow Rate, HFR (veh/h)	7	196	0	0	281	52
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	36		5			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	40	0	5	0	0	0
Percent Heavy Vehicles	50	0	50	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	7					40		5
C (m) (veh/h)	1204					511		633
v/c	0.01					0.08		0.01
95% queue length	0.02					0.25		0.02
Control Delay (s/veh)	8.0					12.6		10.7
LOS	A					B		B
Approach Delay (s/veh)	--	--				12.4		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	J. Staszcuk
Agency/Co.	Sanderson Stewart
Date Performed	8/3/2015
Analysis Time Period	AM Peak Hour

Site Information

Intersection	South Site Access & Haynes Ave
Jurisdiction	MDT
Analysis Year	Existing (2015) + Site

Project Description

East/West Street: South Site Access | North/South Street: Haynes Avenue

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	25	122			89	45
Peak-Hour Factor, PHF	0.86	0.86	1.00	1.00	0.84	0.84
Hourly Flow Rate, HFR (veh/h)	29	141	0	0	105	53
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	42		33			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	46	0	36	0	0	0
Percent Heavy Vehicles	50	0	50	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	29					46		36
C (m) (veh/h)	1398					598		804
v/c	0.02					0.08		0.04
95% queue length	0.06					0.25		0.14
Control Delay (s/veh)	7.6					11.5		9.7
LOS	A					B		A
Approach Delay (s/veh)	--	--				10.7		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	J. Staszcuk
Agency/Co.	Sanderson Stewart
Date Performed	8/3/2015
Analysis Time Period	PM Peak Hour

Site Information

Intersection	South Site Access & Haynes Ave
Jurisdiction	MDT
Analysis Year	Existing (2015) + Site

Project Description

East/West Street: South Site Access | North/South Street: Haynes Avenue

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	21	135			164	38
Peak-Hour Factor, PHF	0.84	0.84	1.00	1.00	0.70	0.70
Hourly Flow Rate, HFR (veh/h)	25	160	0	0	234	54
Percent Heavy Vehicles	6	--	--	0	--	--
Median Type	Two Way Left Turn Lane					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	36		21			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	40	0	23	0	0	0
Percent Heavy Vehicles	50	0	50	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	1	0	0	0
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L					L		R
v (veh/h)	25					40		23
C (m) (veh/h)	1251					529		675
v/c	0.02					0.08		0.03
95% queue length	0.06					0.24		0.11
Control Delay (s/veh)	7.9					12.4		10.5
LOS	A					B		B
Approach Delay (s/veh)	--	--				11.7		
Approach LOS	--	--				B		

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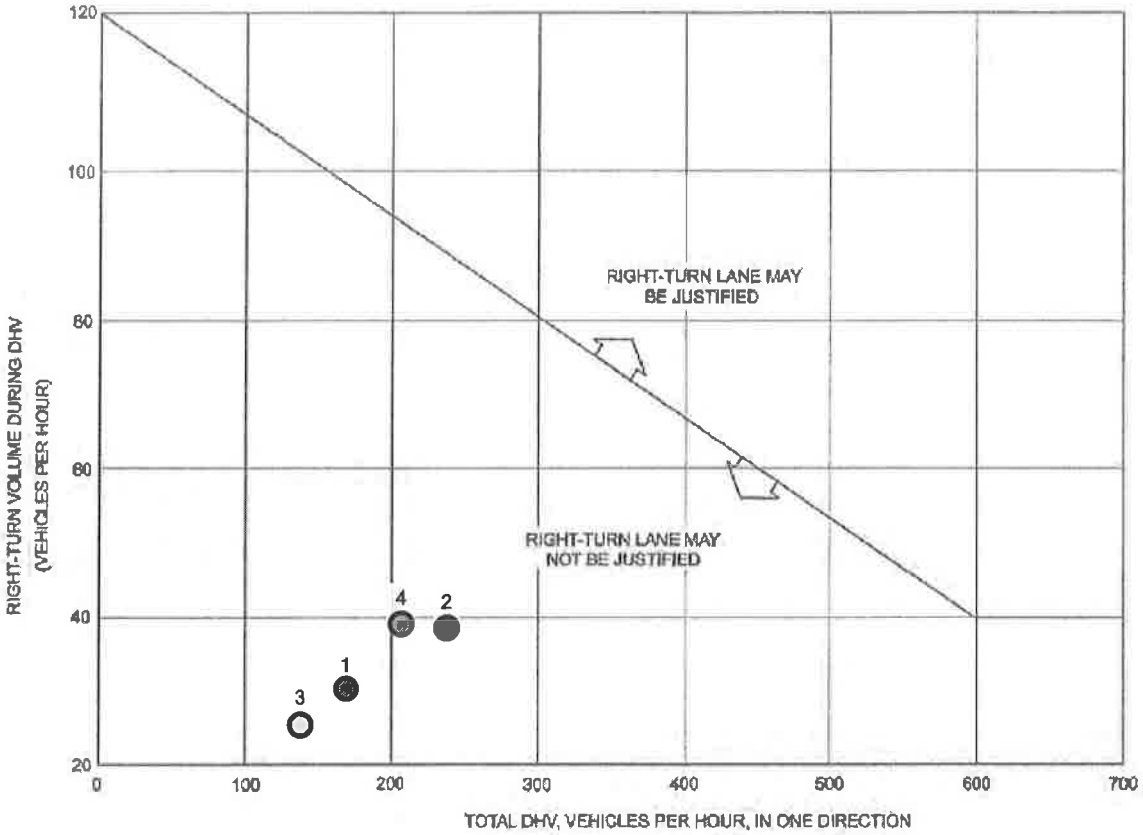
SANDERSON STEWART

APPENDIX D

AUXILIARY LANE WARRANT WORKSHEETS



Note: For highways with a design speed below 50 mph (80 km/h) with a DHV < 300 and where right turns are > 40, an adjustment should be used. To read the vertical axis of the chart, subtract 20 from the actual number of right turns.

1. North Approach - Southbound AM Peak
2. North Approach - Southbound PM Peak
3. South Approach - Southbound AM Peak
4. South Approach - Southbound PM Peak

Example

Given:	Design Speed	=	35 mph (60 km/h)
	DHV	=	250 vph
	Right Turns	=	100 vph

Problem: Determine if a right-turn lane is necessary.

Solution: To read the vertical axis, use 100 - 20 = 80 vph. The figure indicates that a right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS

Figure 28.4A

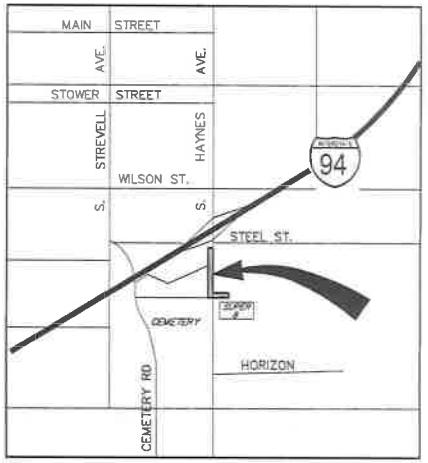
SOUTH HAYNES AVENUE / HWY 59
WATER AND SANITARY SEWER EXTENSION PROJECT
MILES CITY, MONTANA

PREPARED FOR:

CHS INC. dba CENEX ZIP TRIP
16124 E. MARIETTA LANE
SPOKANE VALLEY, WASHINGTON 99216

PREPARED BY:

SANDERSON STEWART
1300 North Transtech Way
Billings, Montana 59102
Phone: 406.656.5255
www.sandersonstewart.com



NORTH

VICINITY MAP
NOT TO SCALE

GOVERNING AGENCIES

CITY OF MILES CITY PUBLIC WORKS DEPARTMENT
17 SOUTH 8TH STREET
MILES CITY, MONTANA 59301
ALLEN KELM (406) 234-3493

MONTANA DEPARTMENT OF TRANSPORTATION GLENDIVE DISTRICT
503 NORTH RIVER AVENUE
GLENDIVE, MONTANA 59331
TROY HAFELE (406) 345-8227

UTILITY COMPANIES

WATER AND SEWER

MILES CITY PUBLIC WORKS DEPARTMENT
17 SOUTH 8TH STREET
MILES CITY, MONTANA 59301
ALLEN KELM (406) 234-3493

CUSTER COUNTY WATER & SEWER DISTRICT
713 PLEASANT ST
MILES CITY, MONTANA 59301
(406) 234-1803

ELECTRIC & NATURAL GAS

MONTANA-DAKOTA UTILITIES Co.
814 BRIDGE STREET
MILES CITY, MONTANA 59301
RON HURR (406) 874-1101

TELEPHONE

MID RIVERS
1101 MAIN STREET
MILES CITY, MONTANA 59301
800-452-2288

RANGE TELEPHONE COOPERATIVE INC
800-927-2643

CENTURYLINK
219 CALHOUN LN
BILLINGS, MONTANA 59101
LISA WHITE (406) 255-8313

OIL

CENEX PIPELINES
MIKE STAHLY (406) 682-5209

WBI ENERGY PIPELINE

WBI ENERGY TRANSMISSION
(406) 347-5228

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
C1.0	COVER SHEET
C2.0	OVERALL SITE PLAN
C2.1	EXISTING TOPOGRAPHY & DEMOLITION PLAN - NORTH
C2.2	EXISTING TOPOGRAPHY & DEMOLITION PLAN - SOUTH
C2.3	EXISTING TOPOGRAPHY & DEMOLITION PLAN - EAST
C3.0	PLAN AND PROFILE SOUTH HAYNES AVENUE - STA. 1+00 TO 6+00
C3.1	PLAN AND PROFILE SOUTH HAYNES AVENUE - STA. 6+00 TO 11+00
C3.2	PLAN AND PROFILE WATER MAIN - STA. 20+00 TO 24+00
C4.0	DETAILS

PRELIMINARY
DESIGN FOR REVIEW
NOT FOR CONSTRUCTION

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

MONTANA
WALTER B. SMITH JR.
No.18983
PROFESSIONAL ENGINEER

DATE:
FILE: C0000.03_COVER SHEET.DWG
PROJECT NO: 15018.00
CAD: JB/WRS
QUALITY ASSURANCE: DR 02/17/2016
REVISIONS
DATE DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59
WATER AND SANITARY SEWER EXTENSION PROJECT
MILES CITY, MONTANA
COVER SHEET

C1.0

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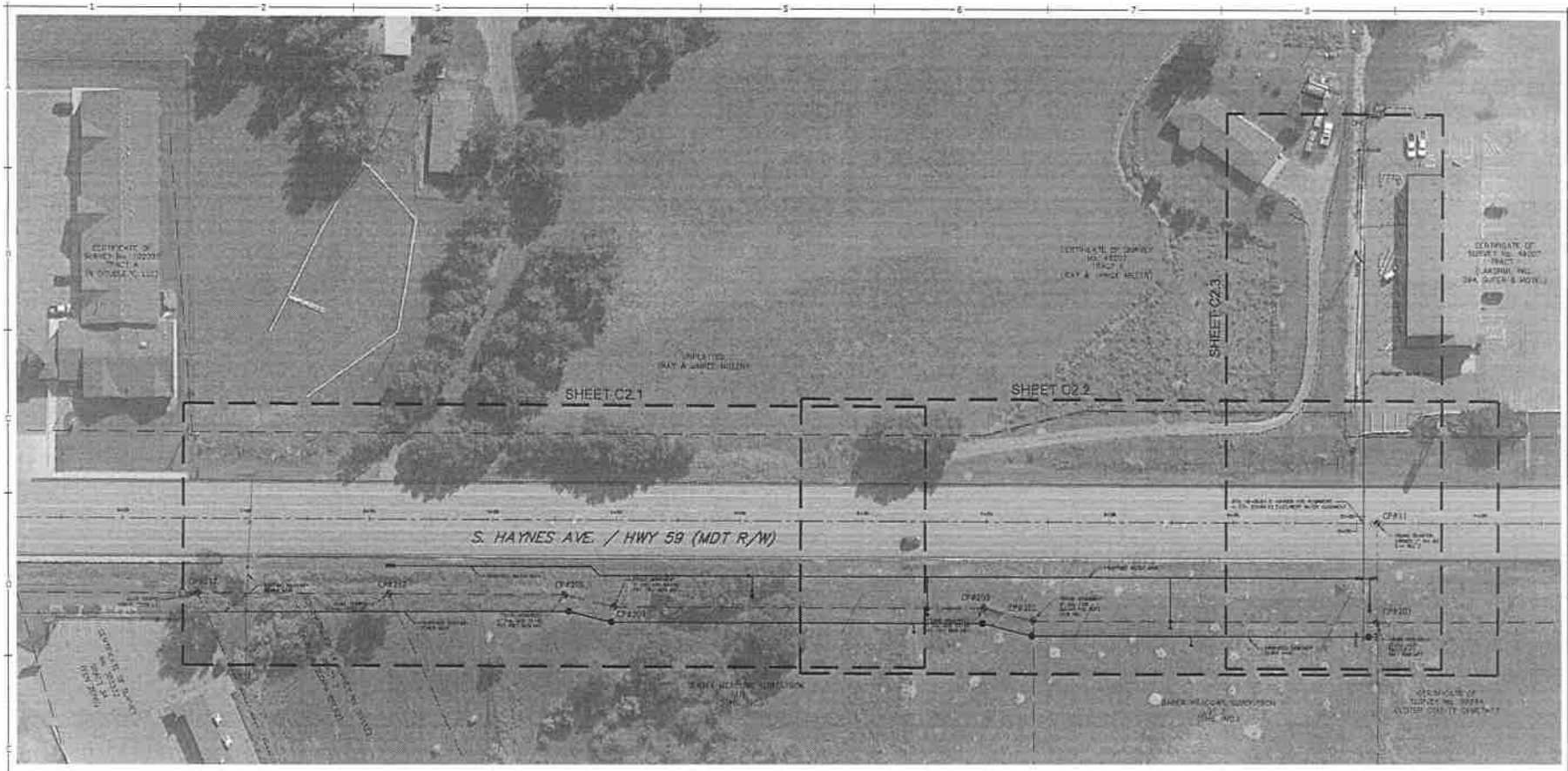

PROJECT SURVEY CONTROL				
Point #	Northing	Easting	Elevation	Description
11	19730.25	30071.89	2402.74	QC / 2" DIA BC E-4 SEC 3
201	19720.58	29993.53	2404.57	MON /2"DIA ACR 86+17.2 PT 82FT ROW MDT
202	20008.03	29992.41	2403.52	MON / 2"DIA ACR 83+43 POT 80FT ROW MDT
203	20048.95	30002.30	2402.68	MON / 2"DIA ACR 83+92 POT 75FT ROW MDT
204	20048.79	30003.90	2394.44	MON / 2"DIA ACR 80+00 POT 70FT ROW MDT
205	20399.50	30014.15	2384.24	MON / 2"DIA ACR 79+30 POT 60FT ROW MDT
212	20520.98	30014.64	2381.86	PKD / 2"ACR 7153L3189M
217	20686.17	30015.12	2384.33	PKD / 2"ACR 7153L3189M

PRELIMINARY

DESIGN FOR REVIEW
NOT FOR CONSTRUCTION

NORTH

SCALE: 1" = 40'

GENERAL NOTES:

1 EXISTING UNDERGROUND INSTALLATIONS & PRIVATE UTILITIES SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION. SERVICE LINES (WATER, POWER, GAS, STORM, SEWER, TELEPHONE & TELEVISION) MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THE PLANS. STATE LAW REQUIRES CONTRACTOR TO CALL ALL UTILITY COMPANIES BEFORE EXCAVATION FOR EXACT LOCATIONS.

2 ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION, APWA, 2012, AND CITY OF MILES CITY STANDARDS.

3 UNLESS OTHERWISE SPECIFIED, ALL CONSTRUCTION LAYOUT AND STAKING SHALL BE PERFORMED UNDER THE RESPONSIBLE CHARGE OF A LAND SURVEYOR LICENSED IN THE STATE OF MONTANA AND BY A PARTY CHIEF OR ENGINEERING TECHNICIAN EXPERIENCED IN CONSTRUCTION LAYOUT AND STAKING TECHNIQUES AS ARE REQUIRED BY THE SPECIFIC TYPE OF WORK BEING PERFORMED.

4 THE CONTRACTOR SHALL MAKE NOTE THAT THIS PROJECT IS SUBJECT TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STORM WATER GENERAL DISCHARGE PERMIT AUTHORIZATION. CONTRACTOR SHALL PAY THE APPLICATION FEE, THE FIRST ANNUAL FEE, AND ADDITIONAL ANNUAL FEES NECESSARY UNTIL THE TERMINATION OF THE PERMIT HAS BEEN GRANTED BY THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ). CONTRACTOR IS RESPONSIBLE FOR SECURING AND ADMINISTERING THE PERMIT AND INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL STRUCTURES. ALL STORM WATER MANAGEMENT AND EROSION CONTROL FOR THIS PROJECT SHALL COMPLY WITH THE ROUNDTRIP BEST PERFORMING GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH CAN BE OBTAINED FROM MDEQ AT:

HTTP://WWW.DEQ.STATE.MT.US/WQ/MPDES/GENERALWATERCONSTRUCTION.ASP

5 ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.

6 ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS.

7 ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT.

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

WALTER H. SMITH JR. No. 18882

DATE: 02/18/2014
FILE: 18882.01_OVERALL_SITE_PROD.DWG
PROJECT NO: 18882.02
CAD: JBW/RS
QUALITY ASSURANCE: SR 02/17/2014

REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59
WATER AND SANITARY SEWER EXTENSION PROJECT
MILES CITY, MONTANA
OVERALL SITE PLAN

C2.0

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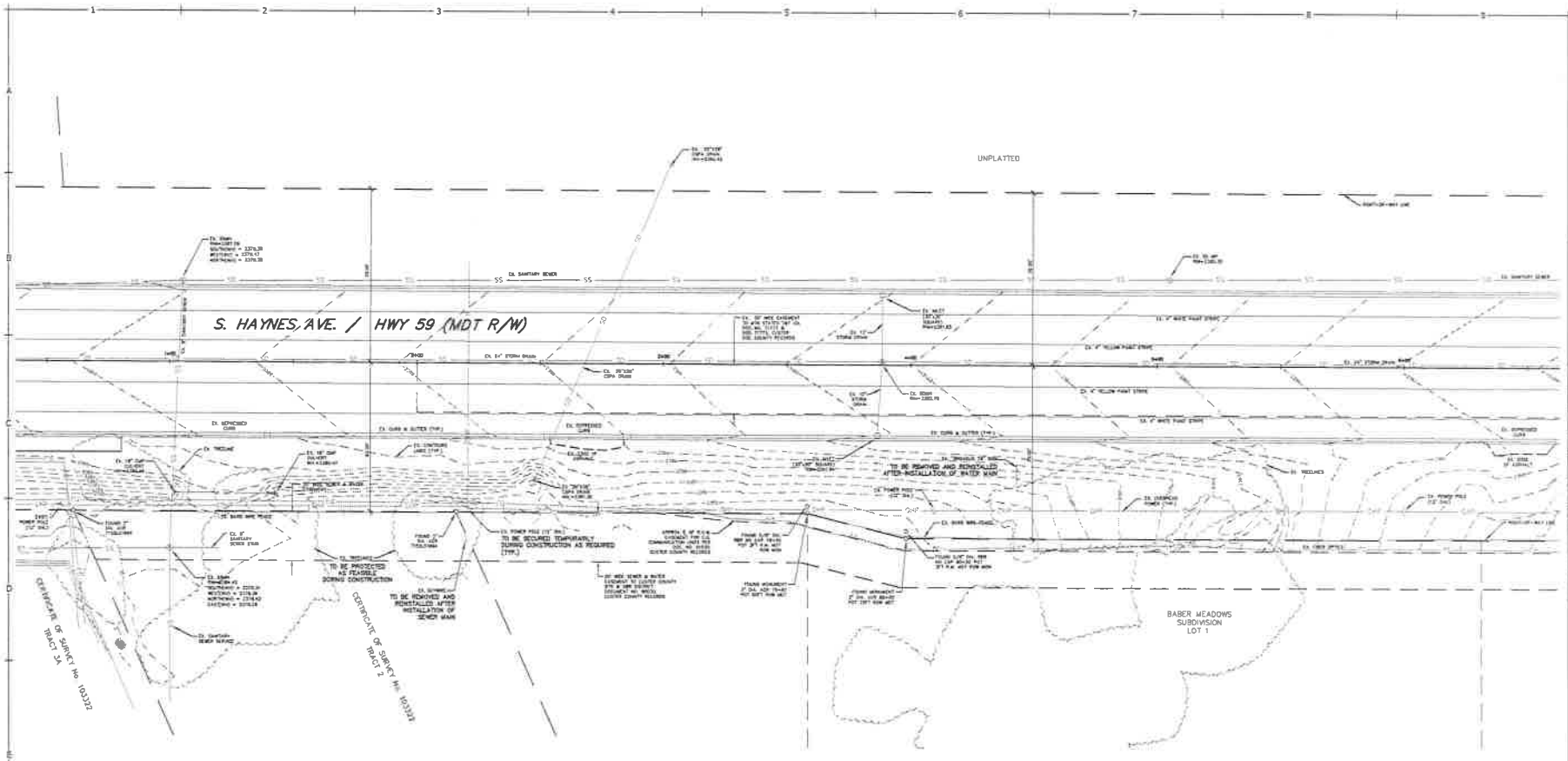

NORTH

SCALE: 1" = 20'

LEGEND

FOUND CORNER MONUMENT AS NOTED	EXISTING GRADE CONTOURS
WATER VALVE	WATER
FIRE HYDRANT	SANITARY SEWER
SANITARY SEWER MANHOLE	STORM DRAIN
STORM DRAIN MANHOLE	TELEPHONE
CATCH BASIN	POWER
TELEPHONE PEDESTAL	OVERHEAD POWER LINE
POWER POLE	BUSH
ELECTRIC JUNCTION BOX	CONIFEROUS TREE
ELECTRIC PEDESTAL	DECIDUOUS TREE
GUYWIRE	
SIGN	
(TYP.) TYPICAL	

PRELIMINARY

DESIGN FOR REVIEW

NOT FOR CONSTRUCTION

SITE DEMOLITION NOTES:

- ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES ARE APPROXIMATE AND THE PROJECT DRAWINGS MAY NOT INCLUDE ALL EXISTING FEATURES WITHIN THE PROJECT BOUNDARIES. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE SITE PRIOR TO BIDDING AND CONSTRUCTION TO BECOME FAMILIAR WITH THE EXISTING SITE FEATURES AND CONDITIONS. IF DISCREPANCIES ARE FOUND BETWEEN THE PROJECT DRAWINGS AND FIELD CONDITIONS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR CLARIFICATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS NECESSARY TO COMPLETE THE PROPOSED WORK INCLUDING DEMOLITION, RIGHT-OF-WAY AND ENVIRONMENTAL PERMITS.
- ALL PUBLIC AND PRIVATE UTILITY TERMINATIONS, RELOCATIONS AND REMOVALS TO BE COORDINATED WITH THE APPLICABLE UTILITY PROVIDERS AND PERFORMED IN ACCORDANCE TO THEIR RESPECTIVE STANDARDS AND SPECIFICATIONS.
- ALL EXISTING MATERIALS TO BE REMOVED SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS.
- ALL REMOVED (DISTURBED OR DAMAGED) EXISTING ASPHALT, CURB AND GUTTER, PUBLIC SIDEWALK AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT-OF-WAY TO BE RESTORED IN ACCORDANCE TO MDT STANDARDS. ALL ASPHALT MATCH LINES SHALL BE SAW CUT TO PROVIDE FLUSH TRANSITION.
- ALL EXCAVATIONS OR VOIDS CREATED DURING DEMOLITION SHALL BE BACKFILLED AND COMPACTED IN A CONTROLLED MANNER PER THE PROJECT GEOTECHNICAL REQUIREMENTS.
- REMOVE AND DISPOSE ALL MISCELLANEOUS ITEMS AND DEBRIS AS REQUIRED TO PROVIDE CLEAN AND WORKABLE SITE.
- EXISTING POWER POLES SHALL BE SECURED/BRACED AS NECESSARY DURING CONSTRUCTION. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY PROVIDER ACCORDINGLY.

GENERAL NOTES:

-EXISTING UNDERGROUND INSTALLATIONS & PRIVATE UTILITIES SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION. SERVICE LINES (WATER, POWER, GAS, STORM, SEWER, TELEPHONE & TELEVISION) MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THE PLANS. STATE LAW REQUIRES CONTRACTOR TO CALL ALL UTILITY COMPANIES BEFORE EXCAVATION FOR EXACT LOCATIONS.

-ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION, APWA, DEQ, AND CITY OF MILES CITY STANDARDS.

-UNLESS OTHERWISE SPECIFIED, ALL CONSTRUCTION LAYOUT AND STAKING SHALL BE PERFORMED UNDER THE RESPONSIBLE CHARGE OF A LAND SURVEYOR LICENSED IN THE STATE OF MONTANA AND BY A PARTY CHIEF OR ENGINEERING TECHNICIAN EXPERIENCED IN CONSTRUCTION LAYOUT AND STAKING TECHNIQUES AS ARE REQUIRED BY THE SPECIFIC TYPE OF WORK BEING PERFORMED.

- THE CONTRACTOR SHALL MAKE NOTE THAT THIS PROJECT IS SUBJECT TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STORM WATER GENERAL DISCHARGE PERMIT AUTHORIZATION. CONTRACTOR SHALL PAY THE APPLICATION FEE, THE FIRST ANNUAL FEE, AND ADDITIONAL ANNUAL FEES NECESSARY UNTIL THE TERMINATION OF THE PERMIT HAS BEEN GRANTED BY THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ). CONTRACTOR IS RESPONSIBLE FOR SECURING AND ADMINISTERING THE PERMIT AND INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL STRUCTURES, ALL STORM WATER MANAGEMENT AND EROSION CONTROL FOR THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH CAN BE OBTAINED FROM MDEQ AT:

HTTP://DEQ.MT.GOV/WQ/MPDES/MPDESCONSTRUCTION.ASP

- ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.
- ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS.
- ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT.

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

MONTANA
WALTER R. SMITH JR.
14613
LICENSED PROFESSIONAL ENGINEER

DATE:
FILE:
PROJECT NO: 15018.03
CAD: JB/WRS
QUALITY ASSURANCE: DR 12/17/2015

REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59

WATER AND SANITARY SEWER EXTENSION PROJECT

MILES CITY, MONTANA

EXISTING TOPOGRAPHY & DEMOLITION PLAN - NORTH

C2.1

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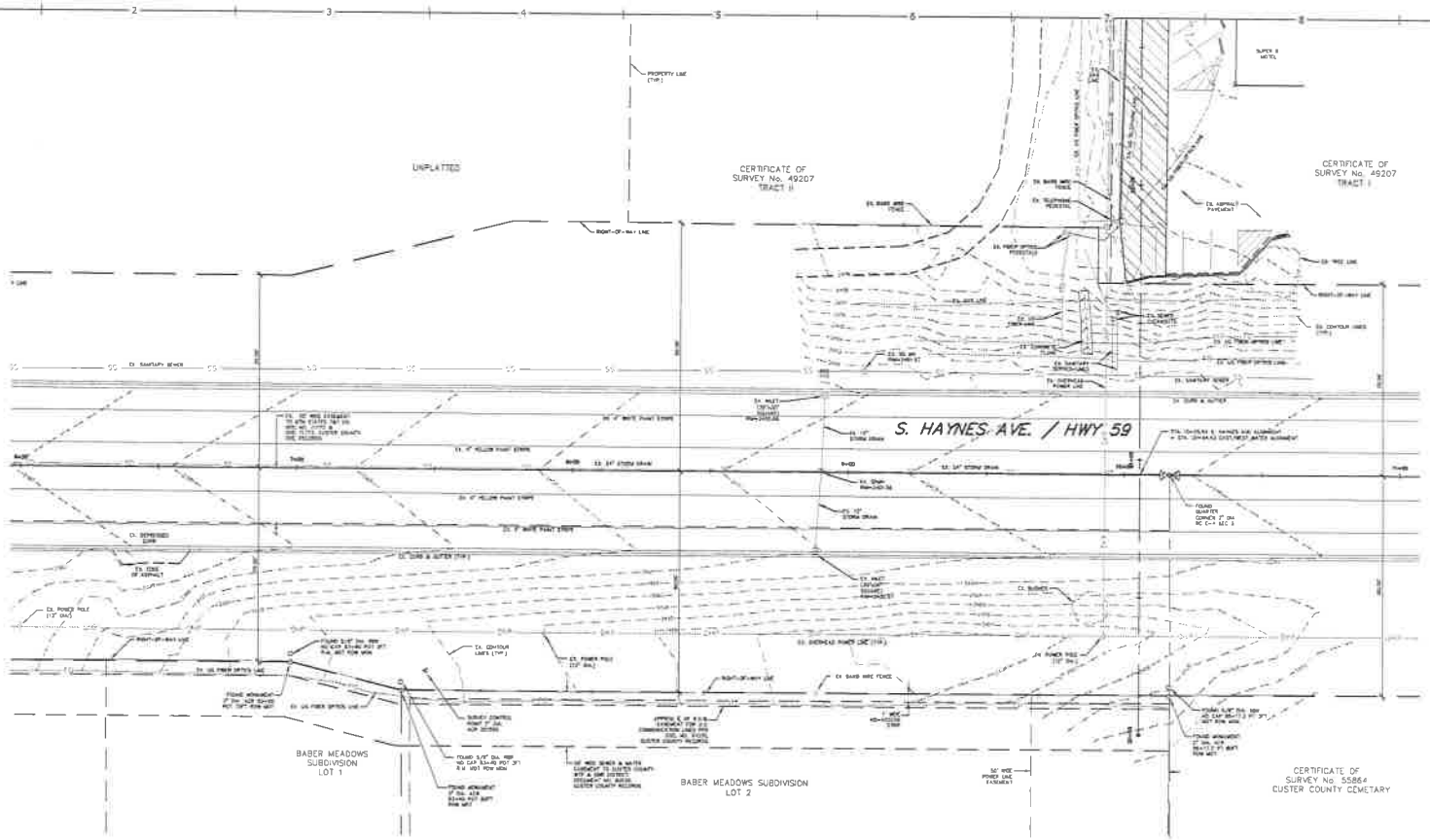

NORTH

SCALE: 1" = 20'

LEGEND

FOUND CORNER MONUMENT AS NOTED	EXISTING GRADE CONTOURS
WATER VALVE	WATER
FIRE HYDRANT	SANITARY SEWER
SANITARY SEWER MANHOLE	STORM DRAIN
STORM DRAIN MANHOLE	TELEPHONE
CATCH BASIN	POWER
TELEPHONE PEDESTAL	OVERHEAD POWER LINE
POWER POLE	BUSH
ELECTRIC JUNCTION BOX	CONIFEROUS TREE
ELECTRIC PEDESTAL	DECIDUOUS TREE
GUYWIRE	
SIGN	
(TYP.) TYPICAL	

PRELIMINARY

DESIGN FOR REVIEW

NOT FOR CONSTRUCTION

SITE DEMOLITION NOTES:

- ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES ARE APPROXIMATE AND THE PROJECT DRAWINGS MAY NOT INCLUDE ALL EXISTING FEATURES WITHIN THE PROJECT BOUNDARIES. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE SITE PRIOR TO BIDDING AND CONSTRUCTION TO BECOME FAMILIAR WITH THE EXISTING SITE FEATURES AND CONDITIONS. IF DISCREPANCIES ARE FOUND BETWEEN THE PROJECT DRAWINGS AND FIELD CONDITIONS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR CLARIFICATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS NECESSARY TO COMPLETE THE PROPOSED WORK INCLUDING DEMOLITION, RIGHT-OF-WAY AND ENVIRONMENTAL PERMITS.
- ALL PUBLIC AND PRIVATE UTILITY TERMINATIONS, RELOCATIONS AND REMOVALS TO BE COORDINATED WITH THE APPLICABLE UTILITY PROVIDING AND PERFORMED IN ACCORDANCE TO THEIR RESPECTIVE STANDARDS AND SPECIFICATIONS.
- ALL EXISTING MATERIALS TO BE REMOVED SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS.
- ALL REMOVED, DISTURBED OR DAMAGED EXISTING ASPHALT, CURB AND GUTTER, PUBLIC SIDEWALK AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT-OF-WAY TO BE RESTORED IN ACCORDANCE TO MDT STANDARDS. ALL ASPHALT MATCH LINES SHALL BE SAW CUT TO PROVIDE FLUSH TRANSITION.
- ALL EXCAVATIONS OR VOIDS CREATED DURING DEMOLITION SHALL BE BACKFILLED AND COMPACTED IN A CONTROLLED MANNER PER THE PROJECT GEOTECHNICAL REQUIREMENTS.
- REMOVE AND DISPOSE ALL MISCELLANEOUS ITEMS AND DEBRIS AS REQUIRED TO PROVIDE CLEAN AND MANNABLE SITE.
- EXISTING POWER POLES SHALL BE SECURED/HELD AS NECESSARY DURING CONSTRUCTION. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY PROVIDER ACCORDINGLY.

GENERAL NOTES:

- EXISTING UNDERGROUND INSTALLATIONS & PRIVATE UTILITIES SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION. SERVICE LINES (WATER, POWER, GAS, STORM SEWER, TELEPHONE & TELEVISION) MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THE PLANS. STATE LAW REQUIRES CONTRACTOR TO CALL ALL UTILITY COMPANIES BEFORE EXCAVATION FOR EXACT LOCATIONS.
- ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS 6TH EDITION APRIL, 2010, AND CITY OF MILES CITY STANDARDS.
- UNLESS OTHERWISE DIRECTED, ALL CONSTRUCTION LAYOUT AND STAKING SHALL BE PERFORMED UNDER THE RESPONSIBLE CHARGE OF A LAND SURVEYOR LICENSED IN THE STATE OF MONTANA AND BY A PARTY CHIEF OR ENGINEERING TECHNICIAN EXPERIENCED IN CONSTRUCTION LAYOUT AND STAKING TECHNIQUES AS ARE REQUIRED BY THE SPECIFIC TYPE OF WORK BEING PERFORMED.
- THE CONTRACTOR SHALL MAKE NOTE THAT THIS PROJECT IS SUBJECT TO MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STORM WATER GENERAL DISCHARGE PERMIT AUTHORIZATION. CONTRACTOR SHALL PAY THE APPLICATION FEE, THE FIRST ANNUAL FEE AND ADDITIONAL ANNUAL FEES NECESSARY UNTIL THE TERMINATION OF THE PERMIT HAS BEEN GRANTED BY THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ). CONTRACTOR IS RESPONSIBLE FOR SECURING AND ADMINISTERING THE PERMIT AND INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL STRUCTURES. ALL STORM WATER MANAGEMENT AND EROSION CONTROL FOR THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN THE GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH CAN BE OBTAINED FROM MDEQ AT
- ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.
- ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS.
- ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PROVIDED FOR THIS PROJECT

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

MONTANA
WALTER R. SMITH JR.
No. 18882
PROFESSIONAL ENGINEER

DATE:	REVISION
FILE:	15016.03_EX PROD DWG
PROJECT NO:	15016.03
CAD:	JN / WRS
QUALITY ASSURANCE:	DR / RELEASED

REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59

WATER AND SANITARY SEWER EXTENSION PROJECT

MILES CITY, MONTANA

EXISTING TOPOGRAPHY & DEMOLITION PLAN - SOUTH

C2.2

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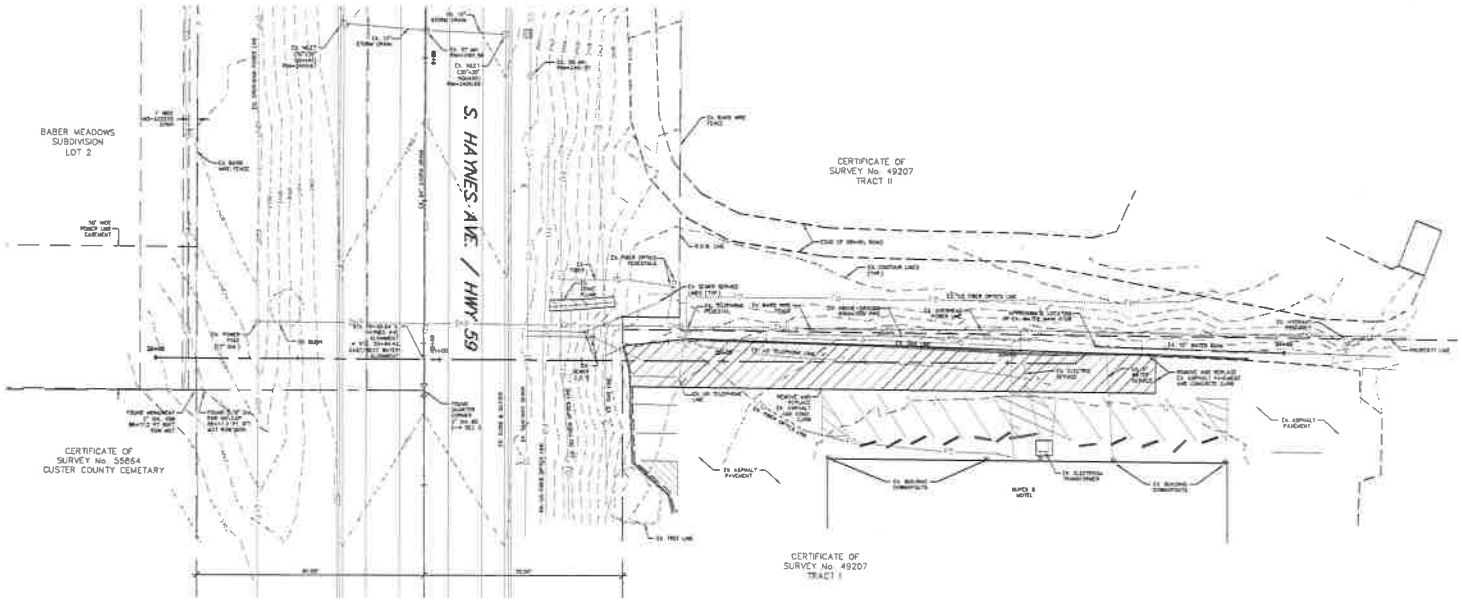
PRELIMINARY

DESIGN FOR REVIEW

NOT FOR CONSTRUCTION



NORTH

SCALE: 1" = 20'

LEGEND

	FOUND CORNER MONUMENT AS NOTED	— 3157 —	EXISTING GRADE CONTOURS
	WATER VALVE	— W —	WATER
	FIRE HYDRANT	— SS —	SANITARY SEWER
	SANITARY SEWER MANHOLE	— SD —	STORM DRAIN
	STORM DRAIN MANHOLE	— T —	TELEPHONE
	CATCH BASIN	— P —	POWER
	TELEPHONE PEDESTAL	— OHP —	OVERHEAD POWER LINE
	POWER POLE		BUSH
	ELECTRIC JUNCTION BOX		CONIFEROUS TREE
	ELECTRIC PEDESTAL		DEDUCUOUS TREE
	GUYWIRE		
	SIGN		
(TYP.)	TYPICAL		

SITE DEMOLITION NOTES:

- ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES ARE APPROXIMATE AND THE PROJECT DRAWINGS MAY NOT INCLUDE ALL EXISTING FEATURES WITHIN THE PROJECT BOUNDARIES. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE SITE PRIOR TO BIDDING AND CONSTRUCTION TO BECOME FAMILIAR WITH THE EXISTING SITE FEATURES AND CONDITIONS. IF DISCREPANCIES ARE FOUND BETWEEN THE PROJECT DRAWINGS AND FIELD CONDITIONS THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER FOR CLARIFICATION.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS NECESSARY TO COMPLETE THE PROPOSED WORK INCLUDING DEMOLITION, RIGHT-OF-WAY AND ENVIRONMENTAL PERMITS.

- ALL PUBLIC AND PRIVATE UTILITY TERMINATIONS, RELOCATIONS AND REMOVALS TO BE COORDINATED WITH THE APPLICABLE UTILITY PROVIDERS AND PERFORMED IN ACCORDANCE TO THEIR RESPECTIVE STANDARDS AND SPECIFICATIONS

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HTTP://WWW.DEQ.STATE.MT.US/WQ/GENERAL/STORMWATER/CONSTRUCTION.ASP

- ALL PROPOSED WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY IS SUBJECT TO THE APPROVAL OF THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT). NO WORK SHALL BE CONDUCTED IN THE RIGHT-OF-WAY UNTIL THE PLANS HAVE BEEN APPROVED BY MDT AND THE CONTRACTOR HAS THE PERMITS IN HAND. ALL WORK IN SOUTH HAYNES AVENUE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDT STANDARDS AND DETAILED DRAWINGS.

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- ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

WALTER R. SMITH JR. No. 18882

DATE:
FILE:
PROJECT NO:
CAD:
QUALITY ASSURANCE:
REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59

WATER AND SANITARY SEWER EXTENSION PROJECT

MILES CITY, MONTANA

EXISTING TOPOGRAPHY & DEMOLITION PLAN - EAST

C2.3

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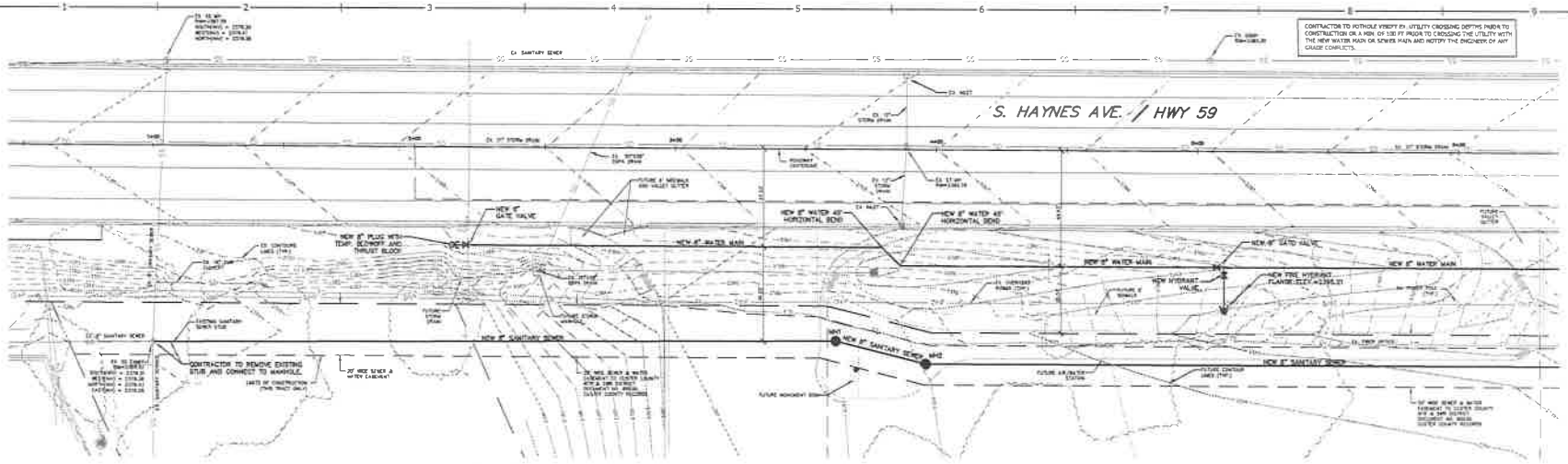
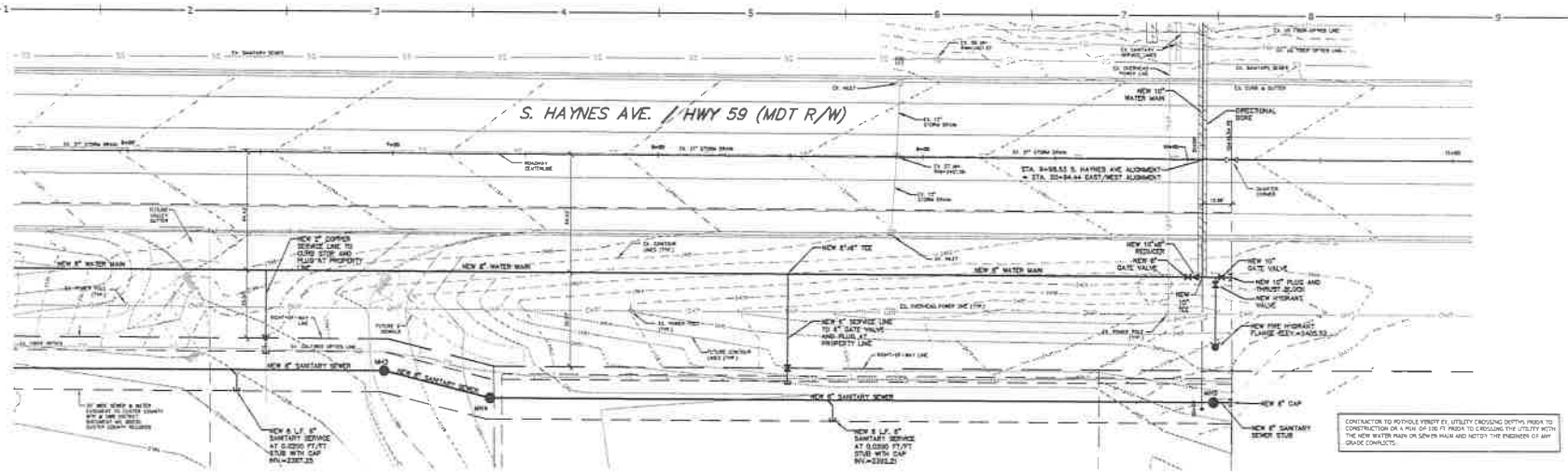

S. HAYNES AVE. / HWY 59
CONTRACTOR TO POTHOLE VIRGIT EV. UTILITY CROSSING DEPTHS PRIOR TO CONSTRUCTION OR A MIN. OF 100 FT PRIOR TO CROSSING THE UTILITY WITH THE NEW WATER MAIN OR SEWER MAIN AND NOTIFY THE ENGINEER OF ANY GRADE CONFLICTS.
EX. SANITARY SEWER
EX. WEST
EX. 12" STORM DRAIN
EX. 18" STORM DRAIN
EX. 24" STORM DRAIN
EX. 15" STORM DRAIN



CONTRACTOR TO POTHOLE VERIFY EX. UTILITY CROSSING DEPTHS PRIOR TO CONSTRUCTION OR A MIN OF 100 FT PRIOR TO CROSSING THE UTILITY WITH THE NEW WATER MAIN ON SEWER MAIN AND NOTIFY THE ENGINEER OF ANY GRADE CONFLICTS.

NORTH

SCALE

PLAN : 1" = 20'
PROFILE
HORIZ. : 1" = 20'
VERT. : 1" = 5'

20 10 0 20 40
SCALE:1" = 20'

GENERAL NOTES:

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HTTP://WWW.DEQ.STATE.MT.US/WQINFO/MPDES/STORMWATERCONSTRUCTION.ASP

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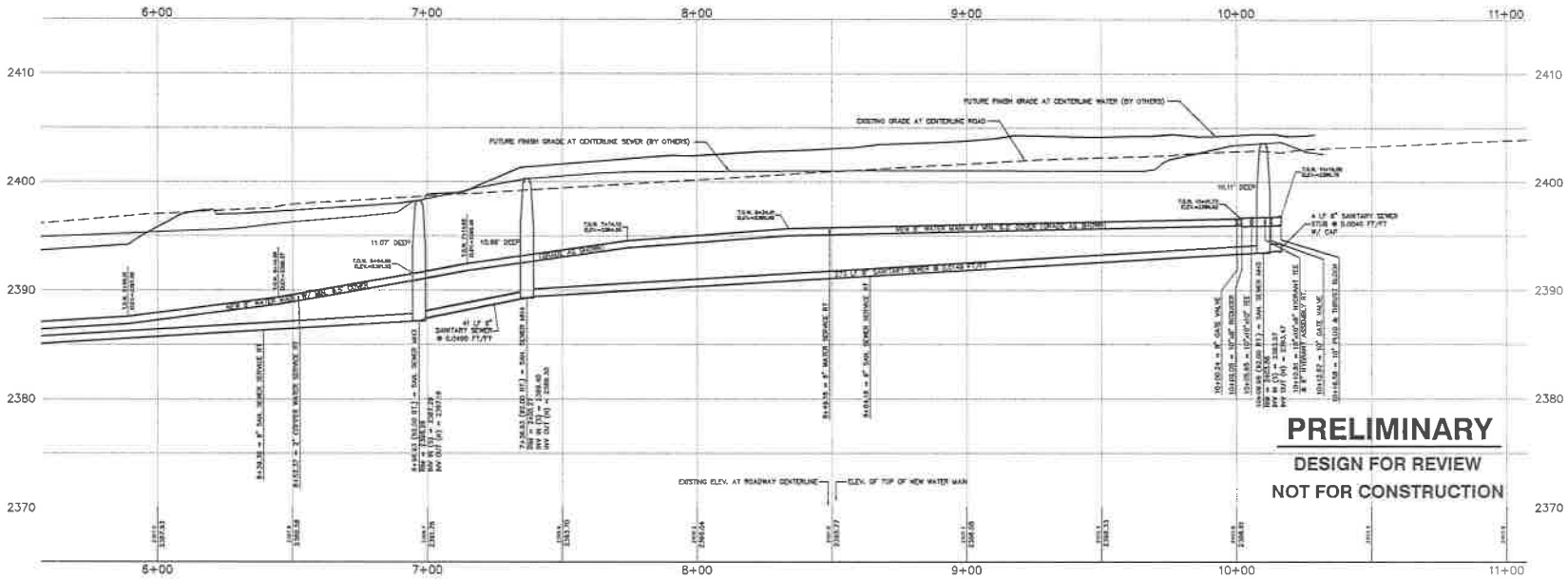
- ALL WORK WITHIN SOUTH HAYNES AVENUE RIGHT-OF-WAY WILL REQUIRE TRAFFIC CONTROL IN ACCORDANCE WITH MUTCD & MDT STANDARD SPECIFICATIONS.

- ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT, WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.

- ITEMS IDENTIFIED AS "FUTURE", INCLUDING SIDEWALKS, CURB RAMPS, VALLEY GUTTERS, UTILITY SERVICES AND PROPOSED GRADE LINES, ARE TO BE CONSTRUCTED UNDER SEPERATE CONTRACT AS PART OF THE CENEX ZIP TRIP NO. 75 PROJECT AND ARE INCLUDED ON THESE PLANS FOR REFERENCE ONLY.



PRELIMINARY
DESIGN FOR REVIEW
NOT FOR CONSTRUCTION

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART
www.sandersonstewart.com

MONTANA
WALTER R. SMITH JR
No. 10982
OFFICIAL SEAL

DATE: 10/2/15
FILE: 130416.C_PRF_PROD.DWG
PROJECT NO.: 130416.00
CAD: JB/WRS
QUALITY ASSURANCE: JAB 10/2/15/WRS
REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59
WATER AND SANITARY SEWER EXTENSION PROJECT
MILES CITY, MONTANA
PLAN & PROFILE SOUTH HAYNES AVENUE - STA. 6+00 TO 11+00

C3.1

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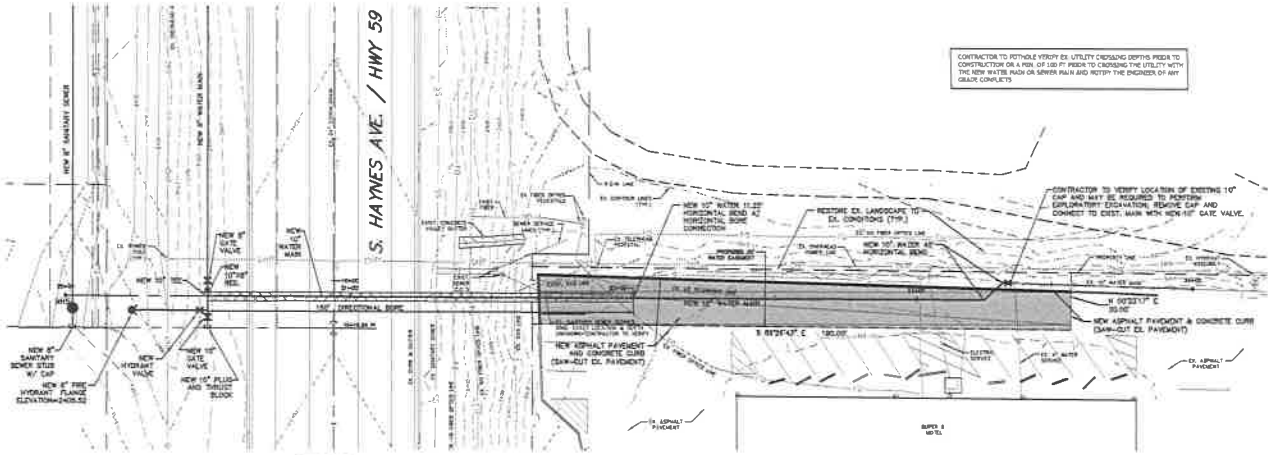

SCALE

PLAN : 1" = 20'
PROFILE
HORIZ. : 1" = 20'
VERT. : 1" = 5'

NORTH

20 10 0 20 40
SCALE: 1" = 20'

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–ITEMS IDENTIFIED AS "FUTURE", INCLUDING SIDEWALKS, CURB RAMPS, VALLEY GUTTERS, UTILITY SERVICES AND PROPOSED GRADE LINES, ARE TO BE CONSTRUCTED UNDER SEPERATE CONTRACT AS PART OF THE CENCE ZIP TRIP NO. 75 PROJECT AND ARE INCLUDED ON THESE PLANS FOR REFERENCE ONLY.

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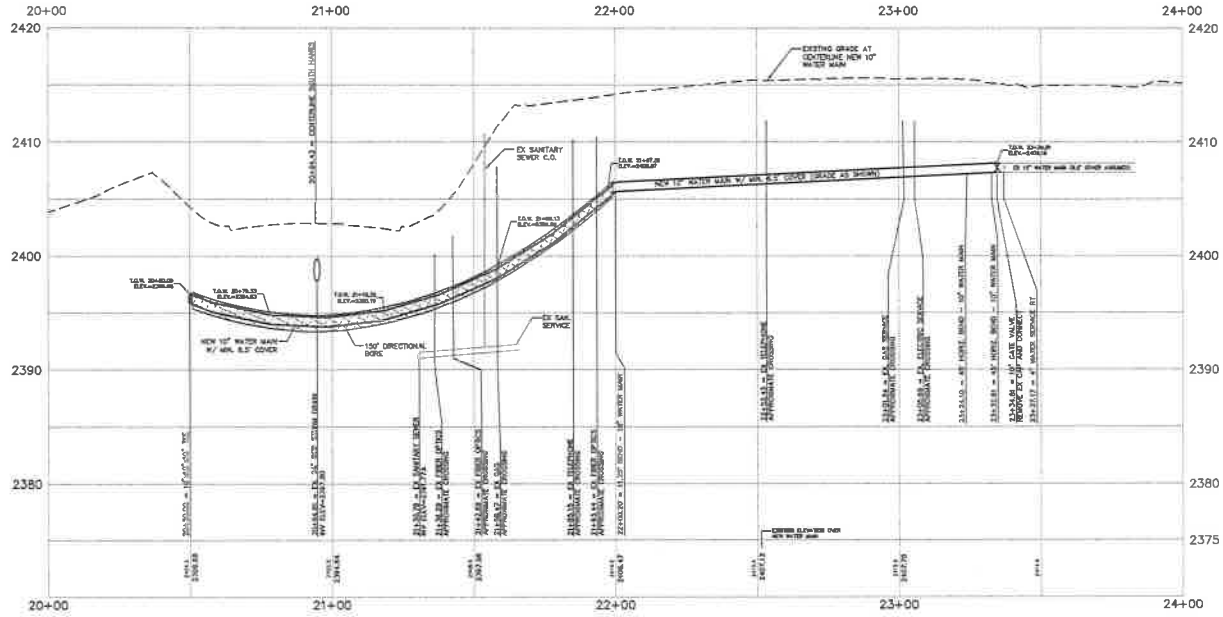
– ALL UTILITY WORK TO BE PERFORMED IN ACCORDANCE TO THE GEOTECHNICAL RECOMMENDATIONS PREPARED FOR THIS PROJECT, WHICH ARE INCLUDED IN THE PROJECT SPECIFICATIONS.

–ANY PAVEMENT REMOVED AS PART OF THE PROJECT SHALL BE SAW-CUT PRIOR TO REMOVAL IN ORDER TO ENSURE A CLEAN, STRAIGHT EDGE BETWEEN EXISTING AND NEW PAVEMENT.

–PAVEMENT REMOVED SHALL BE RESTORED PER DETAIL ON SHEET C4.0. PAVEMENT AND BASE COURSE SECTIONS SHALL MATCH THICKNESS OF EXISTING SECTIONS AT MINIMUM.

–DIRECTIONAL BORE CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING ALL UTILITY CROSSINGS PRIOR TO BORING UNDERNEATH ROADWAY.

–ALL WORK ON OR ADJACENT TO PRIVATE PROPERTY SHALL BE COORDINATED WITH LANDOWNER PRIOR TO START OF CONSTRUCTION



PRELIMINARY

DESIGN FOR REVIEW

NOT FOR CONSTRUCTION

SANDERSON STEWART
www.sandersonstewart.com

MONTANA
WALTER R. SMITH JR.
No. 15285

DATE: 02/11/2020
FILE: 15016 03_P&P PROD_2.DWG
PROJECT NO: 15016.03
CAD: JB/WRS
QUALITY ASSURANCE: BR 02/11/2020

REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59

WATER AND SANITARY SEWER EXTENSION PROJECT

MILES CITY, MONTANA

PLAN & PROFILE WATER MAIN - STA. 20+00 TO 24+00

C3.2

TO PLAN AND DESIGN ENDURING COMMUNITIES...

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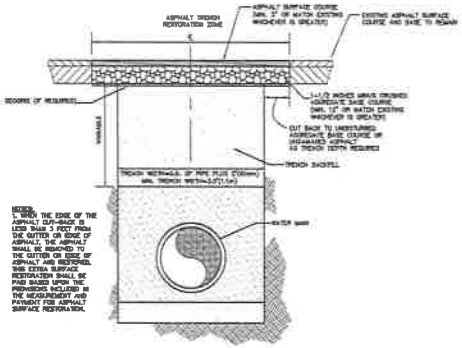
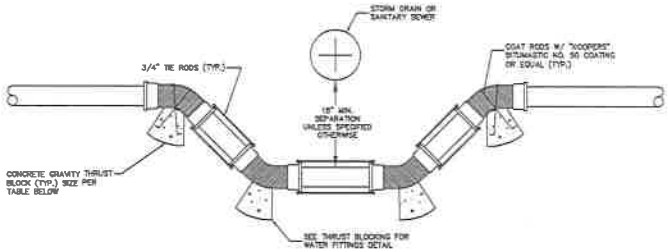


ASPHALT SURFACE RESTORATION DETAIL

NOT TO SCALE



Gravity Block Volume (Cubic Yards)				
Pipe Size	Rebar	Angle of Turndown		
(in)	Ties	11.25° Bend	22.5° Bend	45° Bend
6"	2 - #4	0.6	1.2	2.3
8"	2 - #5	1.0	2.0	4.0
10"	2 - #6	1.5	3.0	5.9
12"	2 - #6	2.2	4.3	8.4
14"	2 - #8	2.9	5.7	11.2
16"	2 - #8	3.7	7.4	14.5

WATER MAIN VERTICAL BEND JOINT RESTRAINT DETAIL

NOT TO SCALE

PRELIMINARY

DESIGN FOR REVIEW

NOT FOR CONSTRUCTION

TO PLAN AND DESIGN ENDURING COMMUNITIES...

SANDERSON STEWART

www.sandersonstewart.com

WALTER R. SMITH JR. No. 18962

DATE: 02/18/16

FILE: (50)6.02 DETAILS.DWG

PROJECT NO.: (50)6.02

CAD: JB/WRS

QUALITY ASSURANCE: DR 02/17/2016

REVISIONS

DATE	DESCRIPTION

SOUTH HAYNES AVENUE / HWY 59

WATER AND SANITARY SEWER EXTENSION PROJECT

MILES CITY, MONTANA

DETAILS

C4.0

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