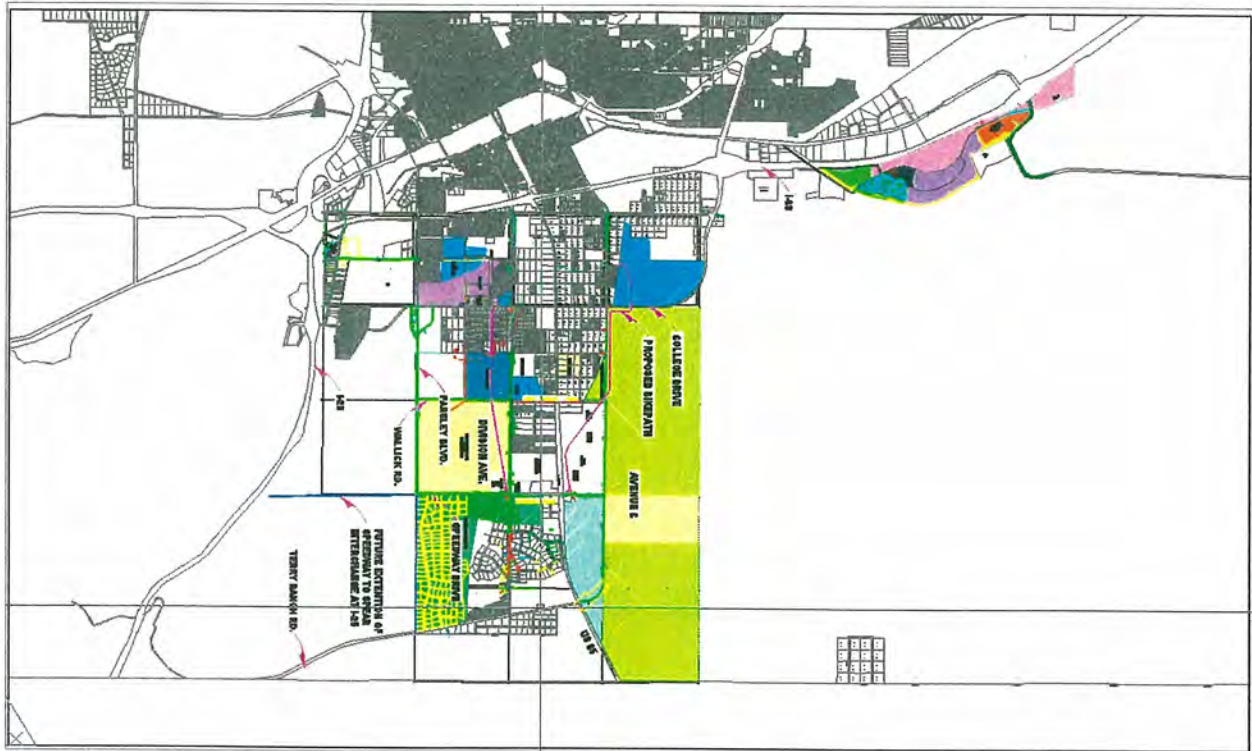


STREET NETWORK MASTERPLAN

SOUTH CHEYENNE STREETS



May 20, 2004

Prepared By:

A.V.I., p.c.
2035 Westland Road
Cheyenne, WY 82001

In Association With:

TransPlan
1375 Walnut Street, Ste 211
Boulder, CO 80302

Prepared For:

City of Cheyenne
Metropolitan Planning Office

Date: 9/16/04

RESOLUTION NO. 4623

ENTITLED: "A RESOLUTION ADOPTING THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN PREPARED BY THE CHEYENNE METROPOLITAN PLANNING ORGANIZATION AS AN AMENDMENT TO THE CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994."

WHEREAS, the Wyoming Statutes, 15-1-503 and 18-5-202, allow cities and counties to prepare and adopt master or comprehensive plans to guide the growth and development of an area and the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 was prepared and acknowledged by the Board of County Commissioners as the guide to the development of all modes of transportation in the Cheyenne Area in accordance with the requirements of those statutes; and

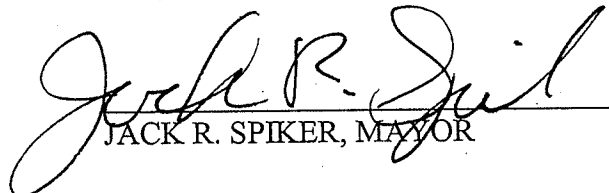
WHEREAS, the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 is a dynamic document and is meant to be amended as needs of the community change or as planning in greater detail is conducted and Wyoming Statutes, 15-1-503(b) and 18-5-202(b), anticipate and provide for plan amendments; and

WHEREAS, the Cheyenne- Laramie Regional Planning Commission held a public hearing on June 21, 2004, accepted public comments, and did recommend THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN as the update for this area to the Governing Body of the City of Cheyenne and the Board of Commissioners for Laramie County for adoption.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF CHEYENNE, WYOMING,

THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN is adopted as an amendment to the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 for the South Cheyenne Area and supersedes or replaces the specifics of the existing CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 for that area and that the City and County Planning staffs are to incorporate the text and mapping into the next update of the Cheyenne Area Master Transportation Plan -1994.

PRESENTED, READ AND ADOPTED THIS 13th DAY OF September 2004.


JACK R. SPIKER, MAYOR

SEAL:

ATTEST:


CAROL A. INTLEKOFER, CITY CLERK

RESOLUTION NO. 040817-09

ENTITLED: "A RESOLUTION ADOPTING THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN PREPARED BY THE CHEYENNE METROPOLITAN PLANNING ORGANIZATION AS AN AMENDMENT TO THE CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 APPROVED BY RESOLUTION NUMBER 941206-6."

WHEREAS, the Wyoming Statutes, 15-1-503 and 18-5-202, allow cities and counties to prepare and adopt master or comprehensive plans to guide the growth and development of an area and the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 was prepared and acknowledged by the Board of County Commissioners as the guide to the development of all modes of transportation in the Cheyenne Area in accordance with the requirements of those statutes; and


WHEREAS, the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 is a dynamic document and is meant to be amended as needs of the community change or as planning in greater detail is conducted and Wyoming Statutes, 15-1-503(b) and 18-5-202(b), anticipate and provide for plan amendments; and

WHEREAS, the Cheyenne- Laramie Regional Planning Commission held a public hearing on June 21, 2004, accepted public comments, and did recommend THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN as the update for this area to the Governing Body of the City of Cheyenne and the Board of Commissioners for Laramie County for adoption.

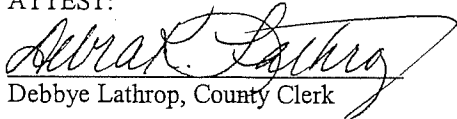
NOW, THEREFORE, BE IT RESOLVED BY BOARD OF COMMISSIONERS FOR LARAMIE COUNTY, WYOMING, THAT:

THE STREET NETWORK MASTERPLAN, SOUTH CHEYENNE STREETS PLAN is adopted as an amendment to the CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 for the South Cheyenne Area and supersedes or replaces the specifics of the existing CHEYENNE AREA MASTER TRANSPORTATION PLAN - 1994 for that area and that the City and County Planning staffs are to incorporate the text and mapping into the next update of the Cheyenne Area Master Transportation Plan -1994.

PRESENTED, READ, AND ADOPTED ON THIS 17th DAY OF August, 2004


Jack B. Knudson, Chariman
Laramie County Commisisoners

(SEAL)
ATTEST:

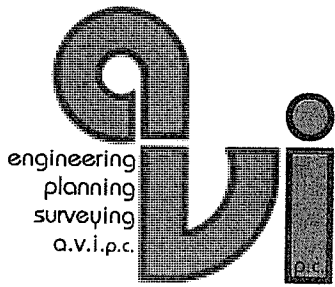

Debbye Lathrop, County Clerk

Received And Approved
As To Form Only
By The County Attorney

 8/24/04

City Attorney
Planning
City

COPY OF RECORD



(307) 637-6017
fax no. (307) 632-9326
2035 westland rd.
cheyenne, wyoming
82001

May 20, 2004

2-2380.03

Tom Mason
Cheyenne Metropolitan Planning Organization
City of Cheyenne
2101 O'Neil Avenue
Cheyenne, Wyoming 82001

RE: STREET NETWORK MASTER PLAN - SOUTH CHEYENNE

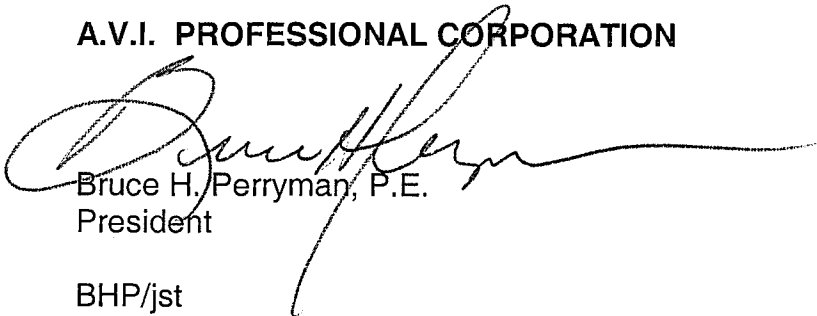
Dear Tom:

AVI has completed our evaluation, findings, and recommendation for the above project and respectfully submits the attached planning document for your review. This report, along with attached Plan set, contains our supplemental review of Parsley Boulevard, Division Avenue, Avenue C, Wallick Road and Speedway Drive roadway segments; the Southwest Drive connection to Parsley Boulevard and the South Industrial Road to Campstool connection.

If you have any questions, or would like to discuss these items, please contact our office.

Sincerely,

A.V.I. PROFESSIONAL CORPORATION



Bruce H. Perryman, P.E.
President

BHP/jst

25th
25th Anniversary

1979-2004 "Providing Engineering Solutions - Yesterday, Today, and Tomorrow"

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CHAPTER 1

SOUTH CHEYENNE ROAD NETWORK

**Parsley Boulevard, Division Avenue, Avenue C, Wallick Road & Speedway Drive:
Supplemental Study**

I. Introduction:

This is a summary of the major findings of the South Cheyenne Street Network Study. This study was authorized by The Cheyenne Metropolitan Planning Office formerly referred to as ChATPP when the project was initiated in August of 2002.

II. Purpose:

The purpose of this study is to develop a working document which is to evaluate the concept of future roadway extensions and development as growth expands into the project study areas and also to analyze the present major collector street network within the study. It is intended that the report recommendations be used as a planning tools in aiding a systematic and highly functional transportation network as development of the areas continue.

Specific project tasks consisted of;

Develop a Conceptual Analysis to a 35% level using City/County mapping for the following streets:

- Avenue C - from College Drive South to the intersection with Terry Ranch Road
- Division Avenue - from College Drive South to the intersection of Speedway and continuing to Dasha

Evaluation at a 10% level conceptual plans for the following streets in the study area;

- Avenue C between East Fox Farm and College Drive
- Walterscheid Blvd. Between West Fox Farm and College Drive
- Wallick Road between Avenue C and Parsley Blvd.
- Speedway Drive between Avenue C and Parsley Blvd.
- Parsley Blvd. From College to Speedway.

Other tasks with in the study area included a conceptual plan for a expanded path/bike way opportunities, key intersection laneage schematics, right-of-way recommendations, drainage evaluations, environmental overview of corridor impacts and preliminary cost estimation.

Refer to Figure No. 1 for an illustration of project area with above streets segments indicated.

III. Traffic Count

The assessment includes projections of traffic volumes, link laneage, intersection laneage, and traffic control. The following six corridors were studied:

- **Parsley Boulevard** from Speedway Drive to Ames Avenue;
- **Walterscheid Boulevard** from Fox Farm Road to College Drive;

- **Division Avenue** from College Drive to the existing subdivision south of Speedway Drive;
- **Avenue C** from Fox Farm Road to the US 85 / Terry Ranch Road intersection;
- **Wallick Road** from Avenue C to Parsley Boulevard; and
- **Speedway Drive** from Avenue C to Parsley Boulevard.

The assessment includes:

- **Trip generation forecasts** based on land-use assumptions provided by the Cheyenne Metropolitan Planning Organization (MPO).
- **Future link volumes** based on trip assignment assumptions.
- **Peak hour turning movements** at major intersections based on existing peak hour counts and future trip assignments.
- **Corridor summaries** including roadway laneage, locations of future traffic signals and additional turn lanes.

Trip Generation Projections:

Trip generation forecasts were prepared based on land use assumptions provided by the MPO. The land use data indicated future dwelling units and future employment by type for each transportation analysis zone (TAZ) within the study area. Future traffic projections were based on trip rates from the Institute of Transportation Engineers Trip Generation (6th Edition, 1997). These trip rates were applied to anticipated land use in the study area to provide a projection of traffic volumes to be generated by the land uses within each TAZ.

Land use forecasts and resultant trip generation for each TAZ within the study area are contained in Table 1. The new trips have been assigned to the corridors with a summary contained in Table 2. The percentage of total generation assigned from each TAZ to the corridors is based on the proximity to the corridors, access along the corridors, the roadway network, and existing travel patterns. Future traffic was separated out into the following areas:

- north of College Drive;
- between College Drive and Wallick Road;
- south of Wallick Road;
- east of US 85; and
- west of US 85.

Future Daily Traffic Volumes and Link Laneage Recommendations:

Existing and future daily traffic volumes along the study corridors are contained in Figure 1. Future volumes for roadways contained in the study were calculated based on the expected volume of traffic to be generated. An annual growth factor of 4% was assumed for roadways that were not part of the study based on direction from the MPO for past projects in south Cheyenne. Laneage recommendations were based on projected Year 2020 traffic volumes and on established guidelines developed by the Cheyenne MPO. Roadway cross sections have been identified by the Cheyenne MPO (formally known as ChATPP) for future roadways in the ChATPP Road, Street and Site Planning Design Standards – Final Draft and the Laramie County Road, Street and Site Planning Standards (February 2001) and are

described in Table 3. Additional right turn lanes may be required at access points to commercial development. This issue should be addressed as the properties develop.

Peak-Hour Turning Volumes:

Existing (Year 2002) and future (Year 2020) peak hour turning volumes are contained in Figures 2 and 3. The existing peak hour volumes were provided by the Cheyenne MPO. Projected daily volumes were converted to peak-hour turning movements using a 9% peak-hour to daily traffic factor based on the existing peak hour percentage of daily traffic. Recommended approach laneage shown in Figure 3 was based on the projected peak hour turning movements.

IV. Corridor Summaries:

The following discussion describes the projected daily volumes, link laneage, and traffic control for each of the corridors contained in the study area. A summary of the recommendations is contained in Figure 4 of Chapter No. 1, Appendix A.

Parsley Boulevard from College Drive to Ames Avenue:

Growth along the Parsley Boulevard corridor is expected to add a total of 9,200 trips per day to the corridor. The majority of these trips will be added north of College Drive including over 5,000 daily trips generated by the development in TAZ 177 (bounded by College Drive, Interstate 25, Interstate 80, and the Burlington Northern Railroad) via a new link under the Burlington Northern Railroad tracks. Traffic is expected to disperse relatively evenly along the corridor north of College Drive with 40% of traffic heading south and 60% heading north. South of College Drive, traffic on the newly constructed section of Parsley between College and Speedway Drive is not expected to exceed 1,500 vehicles per day.

Recommended improvements include:

- Construct the corridor to a 3-lane Urban Minor Arterial standard from Ames Avenue to College Drive. The 2-lane I-80 overpass should not require widening to three lanes because the nearest cross streets are about 1000' from the bridge. This should be ample distance to transition from the 3-lane section to the 2-lane section. Therefore the current bridge should not require widening.
- At College Drive, install a traffic signal and construct approach lanes as shown in Figure 4.
- At Ames Avenue, reconfigure the intersection to favor traffic movements from Parsley Boulevard or Walterscheid Boulevard to Ames Avenue. These movements are expected to increase significantly with little increase in Parsley Boulevard to Walterscheid Boulevard traffic.
- South of College Drive, construct a 2 lane Urban Minor Arterial from College Drive to Speedway Drive.

Walterscheid Boulevard from Fox Farm Road to College Drive :

Growth along Walterscheid Boulevard is expected to add about 8,600 trips per day to the corridor.

Recommended improvements include:

- Construct the corridor to a 3-lane Urban Minor Arterial standard from Fox Farm Road to College Drive.
- Reclassify the corridor from collector to minor arterial.
- At Fox Farm Road, install a traffic signal as shown in Figure 4.
- At Allison Road, install a traffic signal and construct auxiliary lanes as shown in Figure 4.
- At College Drive, construct right turn decel lanes.

Division Avenue from College Drive to the Existing Subdivision South of Speedway Drive:

Growth along Division Avenue is expected to add about 4,900 vehicles per day onto the roadway. The completion of Division Avenue from College Drive to Wallick Road is expected to change the distribution of traffic from the commercial and school traffic along Wallick Road, resulting in increased northbound left turns onto College Drive and the addition of a northbound left-turn lane.

Recommended improvements include:

- Construct the corridor to a 3-lane Urban Collector Street standard from College Drive to Wallick Road.
- Construct the corridor to a 2-lane Urban collector Street standard from Wallick Road to Speedway Drive.

Avenue C from Fox Farm Road to the US 85 / Terry Ranch Road Intersection:

Growth along Avenue C is expected to add about 6,400 trips per day to the corridor. North of College Drive, traffic is expected to increase by about 2,200 vehicles per day to a total of 6,700 vehicles per day. Between College Drive and Wallick Road, traffic volumes are expected to increase by about 2,100 vehicles per day. South of Wallick Road, daily volumes are expected to reach about 2,000.

Recommended improvements include:

- Construct the corridor to a 3-lane Urban Collector Street standard from Fox Farm Road to College Drive.
- Construct the corridor to a 2-lane Urban Collector Street standard from College Drive to Terry Ranch Road.
- At College Drive, construct right turn decel lanes.
- At Fox Farm Road, install a traffic signal and left turn lanes.

Wallick Road from Avenue C to Parsley Boulevard:

Growth within the study area is expected to generate approximately 7,500 daily trips along the corridor. Wallick Road is expected to carry 2,300 vehicles per day east of US 85 and 600 vehicles per day west of US 85.

Recommended improvements include:

- Construct the corridor to a 3-lane Urban Collector Street standard from Division Avenue to US 85.
- Construct the corridor to a 2-lane Urban Collector Street standard from Parsley Boulevard to Division Avenue and from US 85 to Avenue C.
- At US 85, install a traffic signal.

Speedway Drive from Avenue C to Parsley Boulevard:

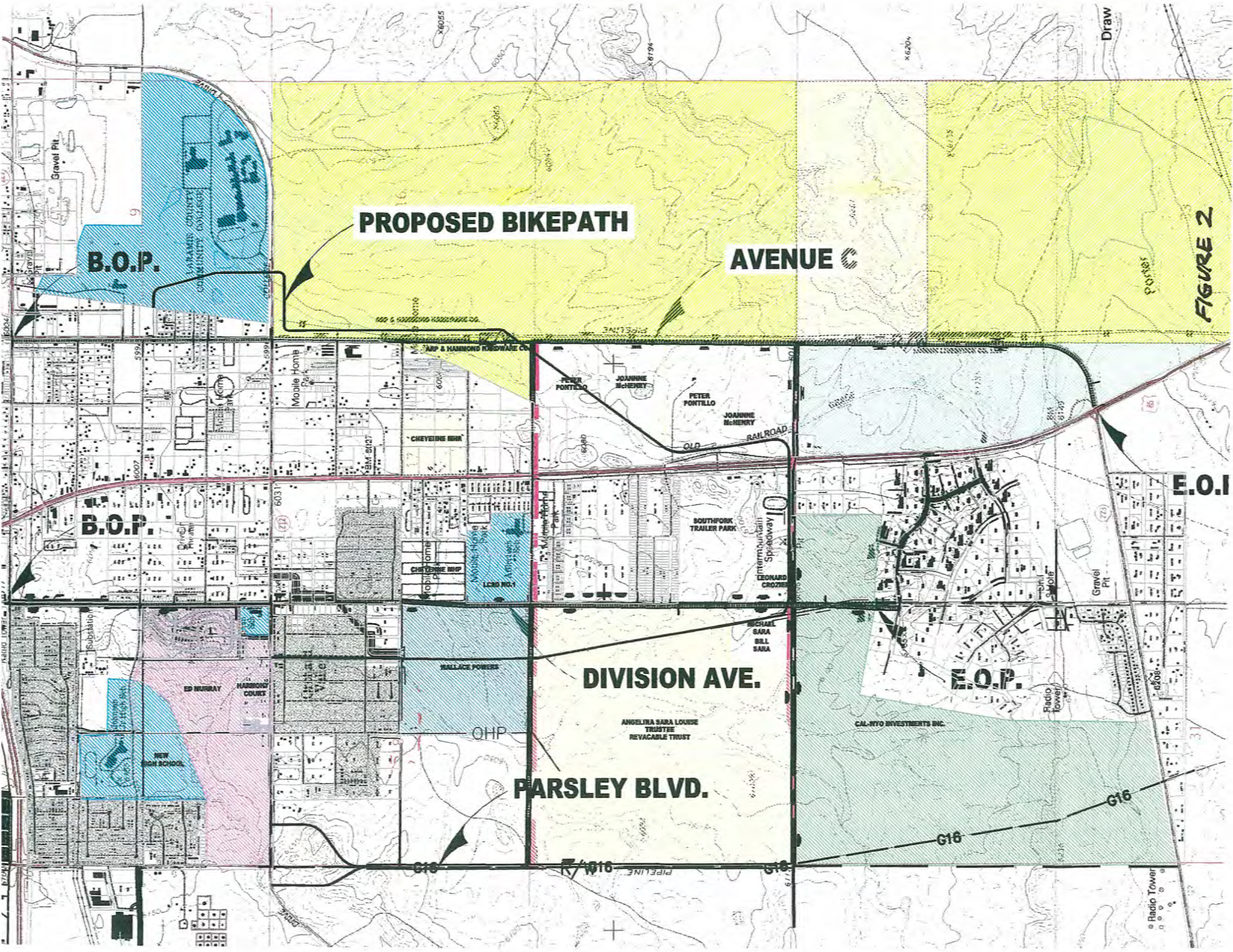
Commercial development along Speedway Drive is expected to add about 2,100 vehicles per day to the corridor. The impact of connecting Speedway Drive to Interstate-25 is likely to increase traffic volumes along Speedway Drive.

Recommended improvements include:

- Construct the corridor to a 2-lane Urban Collector Street standard from Parsley Boulevard to Avenue C.
- Consider reclassifying Speedway Drive to a Principal Urban Arterial from I-25 to US 85 if an interchange is constructed at I-25.

V. Greenway System:

The proposed greenway system is composed of approximately 29,100 lineal feet of 10' wide detached bikepath that is proposed to join with the existing system at Laramie County Community College. The bikepath alignment would cross East College Drive with a proposed underpass and extend southerly along the east side of Avenue C. The alignment would then cross Avenue C and Wallick Road with a proposed underpass. An existing abandoned railroad grade would be utilized for the bikepath to follow towards Speedway Drive and US 85. A grade separated crossing is recommended to cross US 85 and the bikepath would extend westerly along the north side of Speedway Drive. Another grade separated crossing is recommended to cross Division Avenue. Once the path is west of Division, use of the existing WAPA Power Transmission Corridor would afford a nice linear corridor to the Allison Draw Greenway System. This alignment crosses Wallick Road with another proposed underpass. The bikepath would then connect to the Allison Draw greenway system at the Orchard Valley Subdivision and extend northerly to West College Drive. One option of grade separated crossings would be underpasses which may consist of Precast R.C. Box Culverts to provide a safe crossing for pedestrians and bikers which would alleviate at-grade crossing conditions. See the overall layout map for the proposed greenway locations. Refer to Figure #2 for graphical illustration of proposed pathway alignment.



PROPOSED BIKEPATH

AVENUE C

B.O.P.

B.O.P.

FIGURE 2

E.O.P.

E.O.P.

DIVISION AVE.

PARSLEY BLVD.

Parsley Boulevard:

The proposed alignment generally would follow an existing 16" gas line easement. The proposed alignment is composed of 10,623 lineal feet of roadway south of College Drive. Two options for tie-in locations are proposed for the College Drive access to alleviate the interference with the existing gas substation and the large hill located at the existing Parsley Boulevard and College Drive interchange. This alignment would connect to the proposed Wallick Road and Speedway Drive while providing a much needed collector street to access College Drive. This alignment provides a feasible and unobstructed route from College Drive south to Speedway Drive.

A 100' Right-of-way is proposed consisting of a 36' Road width. This preliminary design is comprised of two 12' travel lanes and a 12' center turn lane. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Sidewalk (4") on one side of the street and curb and gutter (24" Type 'A') was considered along both sides of the proposed alignment.

Also, a future 10' wide concrete bikepath should be considered to connect to the aforementioned proposed bikepath extension ending at West College Drive in the Orchard Valley Subdivision. This future bikepath connection could then run by the proposed new High School and Johnson Junior High School and continue towards the existing pedestrian overpass at Interstate 80.

Provisions to allow extension of future Public water mains, 12" water main per Black and Veatch 2004 Master Plan, or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances.

The current landowners of approximately 603 acres on the east side of the proposed Parsley Boulevard alignment between Wallick Road and Speedway Drive are Angelina Louise Sara, Trustee (3921 Frontier Park Avenue, Cheyenne, WY 82001), Joe Sara and Bill Edwards.

Division Avenue (a.k.a. Walterscheid extended Southerly from West College Drive:

The proposed alignment would connect College Drive to the proposed Speedway Drive by utilizing existing portions of the original Division Avenue Right-of-way. The Division Avenue access is proposed to tie into the Walterscheid Avenue and West College Drive intersection on the north end and extend 12,713 lineal feet to Dashia Drive on the south end. Dashia is a paved street that connects to Highway 85 via Bison Crossing Subdivision. This alignment would connect to the proposed Wallick Road and Speedway Drive while providing a much needed north-south collector street to access College Drive.

A combination 80' and 100' Right-of-way is proposed consisting of a 36' roadway width. This preliminary design is comprised of two 12' travel lanes and a 12' center turn lane. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Sidewalk (4") on one side of the street and curb and gutter (24" Type 'A') was considered along both sides of the proposed alignment. Also, 6 additional drainage culverts are proposed at various locations along the alignment. An 80' Right-of-way section was acquired by Laramie County at the tie in location to Walterscheid Boulevard between West College Drive

and Cherry Street.

The existing utilities located along the proposed alignment include an overhead power line easement which crosses Division Avenue between Speedway Drive and Dashia Drive. Provisions to allow extension of future public water mains, sewer mains or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances. Refer to Black and Veatch recommendations for sewer and water in the Board of Public Utilities 2004 Masterplan.

The current landowners from College Drive to Dashia Drive include Legacy, LLC, Max Kelley, Wallace Powers, Cheyenne MHP, Limited, Laramie County School District #1, Angelina Louise Sara, Ruth Williams, Bonnie K. Reider, William J. Edwards, Charles C. Rohwer, South Fork MHS, LLC, Michael James Sara, Leonard L. Crozier, and Cal-Wyo Investments Inc. For addresses, see plan and profile sheets. The extension of Division would diffuse existing traffic congestion problems presently experienced at Artesian and Williams. Division should become a high priority project as a new 1,200 student High School is proposed near the existing Johnson Junior High School, and a 350 student Alternative High School, Triumph High, is proposed along College Drive just west of Walterschied and College..

Avenue C:

The proposed alignment is composed of 17,410 lineal feet of roadway south of East College Drive. This alignment would connect to the proposed Wallick Road and Speedway Drive while providing a much needed north-south collector street to access College Drive on the north end and US 85 and Terry Ranch Road on the south end. This alignment provides a feasible and unobstructed route by utilizing the existing north portion of the original Avenue C Right-of-way from East College Drive to Murray Road and connecting College Drive to the US 85 and Terry Ranch Road intersection.

A 80' Right-of-way is proposed consisting of a 36' roadway width. This preliminary design is comprised of two 12' travel lanes and a 12' center turn lane. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Sidewalk (4") on one side of the street and curb and gutter (24" Type 'A') was considered along both sides of the proposed alignment. Seven (7) additional drainage culverts are proposed at various locations along the alignment. These include 4 proposed 44" x 26" Arch RCP culverts located just south of East College Drive, 2 proposed Arch culverts at Artesian Road and one culvert between Wallick Road and Speedway Drive.

The existing utilities include a pipeline easement located on the east side of the proposed Avenue C extension which follows the Avenue C alignment for a majority of the route. Provisions to allow extension of future public water mains, sewer mains or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances. Refer to Black and Veatch recommendations for sewer and water in the Board of Public Utilities 2004 Masterplan. The current landowners from College Drive to the US 85 and Terry Ranch Road interchange include Arp and Hammond Hardware Company, Don Kehn Construction Inc., Peter Pontillo, Joanne R. McHenry and the State of Wyoming. For addresses, see plan and profile sheets. Also, the anticipated development along Avenue C is foreseen to be

Business/Industrial on the west side and primarily continuation of Agricultural land uses on the east side. Considerable future development potential exists along this roadway segment for both resident and commercial/industrial traffic generations.

Wallick Road:

The proposed alignment is composed of 10,653 lineal feet of roadway running east/west located south of East College Drive. This alignment would connect to the proposed Parsley Boulevard Extension on the west and to the Avenue C Extension on the east. This alignment provides a feasible and unobstructed route by utilizing the existing portion of the original Wallick Road Right-of-way from Division Avenue to US 85 and connecting Parsley Boulevard to Avenue C.

A 80' Right-of-way is proposed consisting of a 36' roadway width. This preliminary design is comprised of two 12' travel lanes and a 12' center turn lane. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Sidewalk (4") on one side of the street and curb and gutter (24" Type 'A') was considered along both sides of the proposed alignment.

The existing utilities along the Wallick Road alignment include an overhead power line easement which crosses Wallick Road between Parsley Boulevard and Division Avenue. Provisions to allow extension of future public water mains, sewer mains or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances.

The current landowners along the Wallick Road alignment include Arp and Hammond Hardware Company, Peter Pontillo, Laramie County School District #1, Wallace Powers and Angelina Louise Sara. For addresses, see plan and profile sheets.

Speedway Drive:

The proposed alignment is composed of approximately 25,810 lineal feet of roadway running east/west located south of East College Drive. This alignment is anticipated to eventually extend to the proposed new Spear Interchange at I-25 and has potential to serve as a new outer belt route. Speedway would have intersection with Parsley Boulevard Extension, Division Avenue Extension, US 85, and the Avenue C Extension. A 120' right-of-way is proposed consisting of a 48' roadway width. This preliminary design is comprised of four 12' travel lanes. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Sidewalk (4") on one side of the street and curb and gutter (24" Type 'A') was considered along both sides of the proposed alignment. The cost estimate of Speedway Drive includes up to but not including the proposed I-25 Interchange.

The existing utilities along the proposed Speedway Drive alignment include a 16" gas line easement which crosses at the Parsley Boulevard and Speedway road intersection. Also, an overhead power transmission line easement crosses Speedway Drive between Parsley Boulevard and Division Avenue. Provisions to allow extension of future public water mains, sewer mains or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances.

The current landowners along the Speedway Drive alignment include Angelina Louise Sara, Cal-Wyo Investments Inc., Michael James Sara, Big Country Speedway, Joanne R. McHenry, and Arp and Hammond Hardware Company. For addresses, see plan and profile sheets. Portions of Bison Crossing Subdivision have been platted up to the Section Line. Thus, alignment jogs are anticipated to secure the 120' recommended corridor.

Conclusion:

The purpose of this study was to develop a working document which is to evaluate the concept of future roadway extensions, determine development impacts as growth expands into the project study areas and also to analyze the present major collector street network within the study. Upon our analysis, we have concluded that the proposed new alignments are feasible and most economical routes to connect the major collector streets and arterials of the South Cheyenne Street Network and link new development areas into the major road network. Utilizing greenway connections and these roadway alignments will alleviate the traffic congestion and roadway safety hazards associated with the existing conditions found along the South Greeley Highway and other South Cheyenne Streets.

<u>Time Frame</u>	<u>Roadway Segment Priority Rating:</u>
0 - 2-yrs	1) Division: College to Wallick Road Wallick Road: Division to Speedway Campstool to South Industrial Road Connector (pending development approval)
2 - 3-yrs	2) Division: Wallick to Speedway Speedway: Division to Hwy 85
3 - 5-yrs	3) Avenue C: College to Speedway Speedway: Hwy 85 to Avenue C
5 - 7-yrs	4) Speedway I-25 to Division Greenway segments as noted
7 - 15-yrs	5) All others depending on development and growth along segment areas

South Cheyenne Streets Probable Construction Cost Opinion

05/20/04

Prepared by: AVI pc - RSR

ITEM NO.	MAJOR BID ITEMS	UNIT	PLAN QUANTITY	UNIT PRICE	ENGINEER'S ESTIMATE
Parsley Boulevard: College to Speedway					
1	Culverts	EA	0	\$3,000.00	\$0.00
2	Linear Grading	STA	105.6	\$400.00	\$42,240.00
3	9" Crushed Base Grading 'W'	TON	23900	\$10.00	\$239,000.00
4	24" Type A Curb and Gutter	LF	21120	\$12.00	\$253,440.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	15000	\$38.00	\$570,000.00
6	4" Sidewalk (One Side of Street)	SY	4700	\$20.00	\$94,000.00
7	4" Bikepath	SY	0	\$20.00	\$0.00
				<i>Subtotal</i>	\$1,198,680.00
Walterscheid Boulevard: Fox Farm to College					
1	Culverts	EA	0	\$3,000.00	\$0.00
2	Linear Grading	STA	53	\$250.00	\$13,250.00
3	9" Crushed Base Grading 'W'	TON	0	\$10.00	\$0.00
4	24" Type A Curb and Gutter (one side)	LF	5280	\$12.00	\$63,360.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	0	\$38.00	\$0.00
6	4" Sidewalk (One Side of Street)	SY	0	\$20.00	\$0.00
7	4" Bikepath	SY	0	\$20.00	\$0.00
				<i>Subtotal</i>	\$76,610.00
Division Avenue: College Drive to Speedway					
1	Culverts	EA	6	\$3,000.00	\$18,000.00
2	Linear Grading	STA	132	\$400.00	\$52,800.00
3	9" Crushed Base Grading 'W'	TON	29850	\$10.00	\$298,500.00
4	24" Type A Curb and Gutter	LF	26400	\$12.00	\$316,800.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	18750	\$38.00	\$712,500.00
6	4" Sidewalk (One Side of Street)	SY	5900	\$20.00	\$118,000.00
7	4" Bikepath	SY	11750	\$20.00	\$235,000.00
				<i>Subtotal</i>	\$1,751,600.00
Avenue C: Fox Farm to Terry Ranch Road					
1	Culverts	EA	7	\$3,000.00	\$21,000.00
2	Linear Grading	STA	158.4	\$400.00	\$63,360.00
3	9" Crushed Base Grading 'W'	TON	35800	\$10.00	\$358,000.00
4	24" Type A Curb and Gutter	LF	31680	\$12.00	\$380,160.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	22500	\$38.00	\$855,000.00
6	4" Sidewalk (One Side of Street)	SY	7050	\$20.00	\$141,000.00
7	4" Bikepath	SY	17600	\$20.00	\$352,000.00
				<i>Subtotal</i>	\$2,170,520.00
Wallick Road: Avenue C to Parsley					
1	Culverts	EA	0	\$3,000.00	\$0.00
2	Linear Grading	STA	105.6	\$400.00	\$42,240.00
3	9" Crushed Base Grading 'W'	TON	23900	\$10.00	\$239,000.00
4	24" Type A Curb and Gutter	LF	21120	\$12.00	\$253,440.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	15000	\$38.00	\$570,000.00
6	4" Sidewalk (One Side of Street)	SY	4700	\$20.00	\$94,000.00
7	4" Bikepath	SY	0	\$20.00	\$0.00
				<i>Subtotal</i>	\$1,198,680.00
Speedway Drive: Avenue C to I-25					
1	Culverts	EA	0	\$3,000.00	\$0.00
2	Linear Grading	STA	257.6	\$400.00	\$103,040.00
3	9" Crushed Base Grading 'W'	TON	74400	\$10.00	\$744,000.00
4	24" Type A Curb and Gutter	LF	51520	\$12.00	\$618,240.00
5	6" Hot Plant Mix Bit Pvmnt Type II	TON	48800	\$38.00	\$1,854,400.00
6	4" Sidewalk (One Side of Street)	SY	11500	\$20.00	\$230,000.00
7	4" Bikepath	SY	7200	\$20.00	\$144,000.00
				<i>Subtotal</i>	\$3,693,680.00
				<i>Total</i>	\$10,089,770.00

South Cheyenne Streets Cost Opinion Summary (Combined East and West Corridors)

Major Bid Items	Parsley Boulevard	Walterscheid Boulevard	Division Avenue	Avenue C	Wallick Road	Speedway Drive	Campstool / South Indus.	Total
Culverts	\$0.00	\$0.00	\$18,000.00	\$21,000.00	\$0.00	\$0.00	\$0.00	\$39,000.00
Linear Grading	\$42,240.00	\$13,250.00	\$52,800.00	\$63,360.00	\$42,240.00	\$103,040.00	\$6,175.00	\$323,105.00
9" Crushed Base Grading 'W'	\$239,000.00	\$0.00	\$298,500.00	\$358,000.00	\$239,000.00	\$744,000.00	\$63,500.00	\$1,942,000.00
24" Type A Curb and Gutter	\$253,440.00	\$63,360.00	\$316,800.00	\$380,160.00	\$253,440.00	\$618,240.00	\$59,160.00	\$1,944,600.00
6" Hot Plant Mix Bit Pvmt Type II	\$570,000.00	\$0.00	\$712,500.00	\$855,000.00	\$570,000.00	\$1,854,400.00	\$152,950.00	\$4,714,850.00
4" Sidewalk (One Side of Street)	\$94,000.00	\$0.00	\$118,000.00	\$141,000.00	\$94,000.00	\$230,000.00	\$0.00	\$677,000.00
4" Bikepath	\$0.00	\$0.00	\$235,000.00	\$352,000.00	\$0.00	\$144,000.00	\$55,000.00	\$786,000.00
Subtotal	\$1,198,680.00	\$76,610.00	\$1,751,600.00	\$2,170,520.00	\$1,198,680.00	\$3,693,680.00	\$336,785.00	\$10,426,555.00
Design A & E Fees	\$180,000.00	\$12,000.00	\$263,000.00	\$326,000.00	\$180,000.00	\$554,080.00	\$50,500.00	\$1,565,580.00
ROW Acquisition	\$80,000.00	\$0.00	\$75,000.00	\$105,000.00	\$40,000.00	\$225,000.00	\$0.00	\$525,000.00
TOTAL	\$1,458,680.00	\$88,610.00	\$2,089,600.00	\$2,601,520.00	\$1,418,680.00	\$4,472,760.00	\$387,285.00	\$12,517,135.00

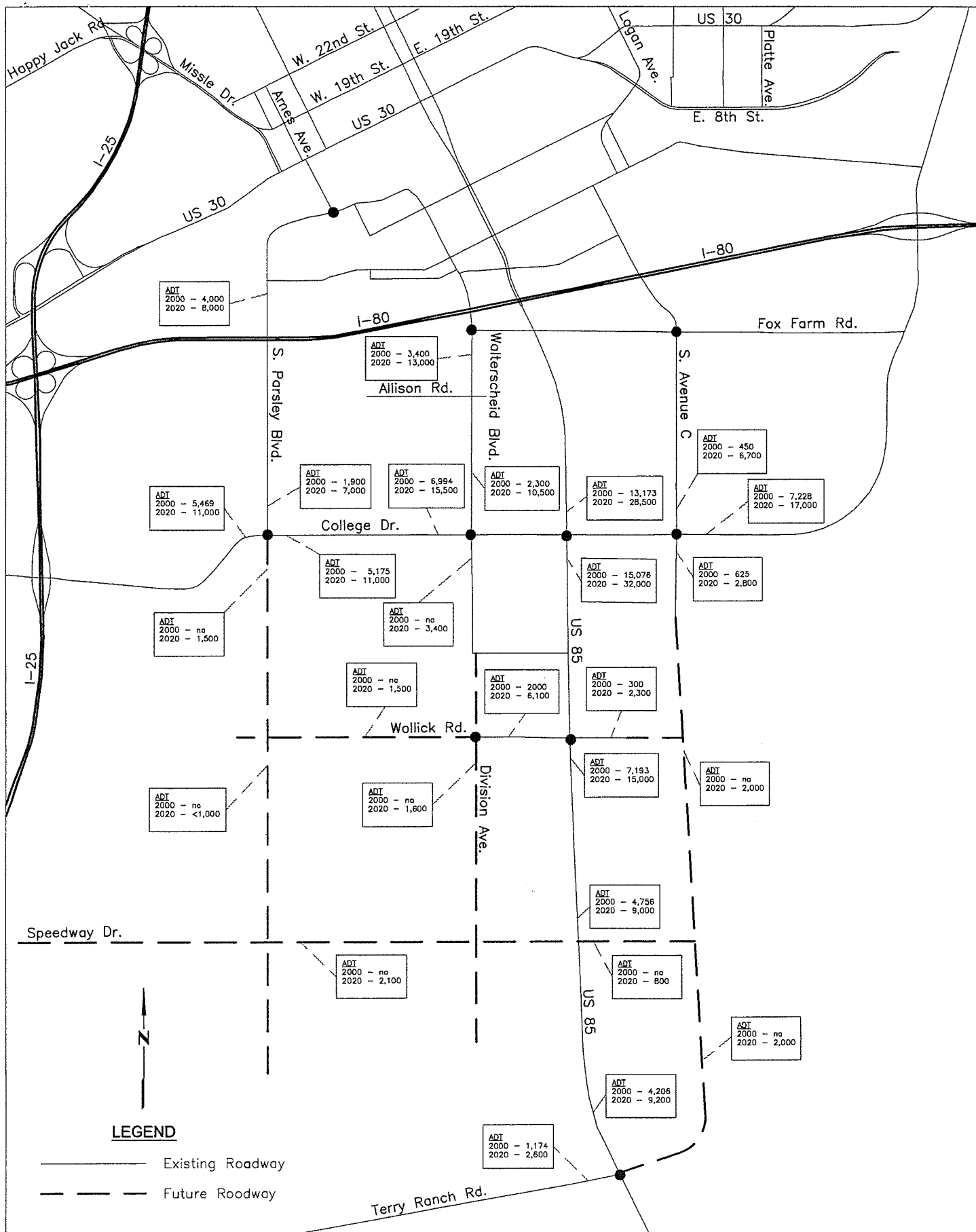
100' ROW	100' ROW	80' ROW	80' ROW	80' ROW	120' ROW	200' ROW
36' Road Width	48' Road Width	36' Road Width	36' Road Width	36' Road Width	48' Road Width	42' Road Width
2 mile Segment	1 mile Segment	2 mile Segment	3 mile Segment	2 mile Segment	5 mile Segment	2465' Segment

Notes:

- 1) Future Installation May be Considered
- 2) Final Costs May Need to be Revised Based on Recommendations from Future Geotechnical Report
- 3) All Cost Estimates were Calculated South of College Drive with exception of Walterschied
- 4) Design A & E Fees have been estimated at 15%
- 5) ROW Acquisition Costs are based on a combination of following assumption: acquired via fee title 1/3 of needed ROW and 2/3 of ROW to be dedicated by adjacent landowners. Cost based on \$10,000 per Acre.

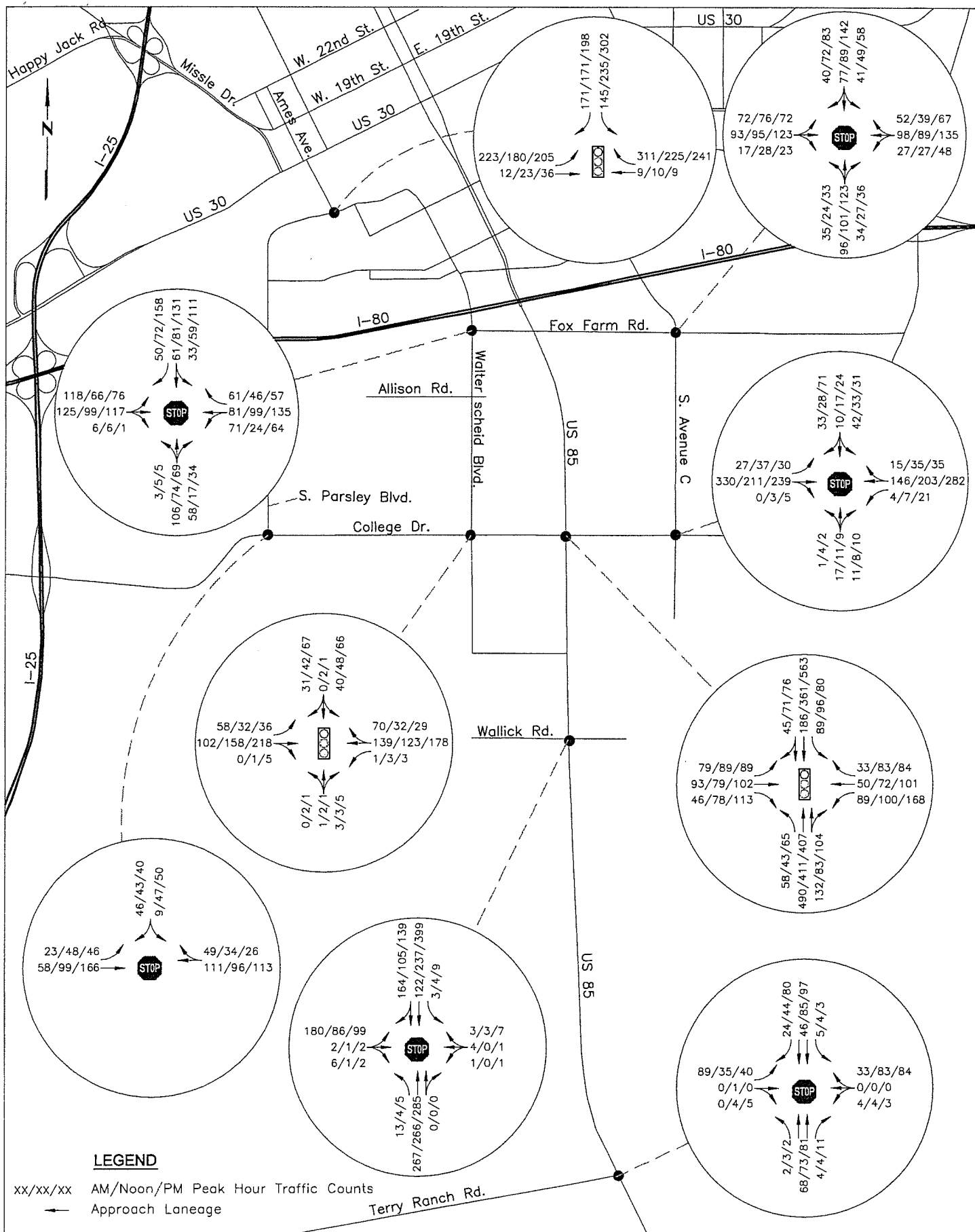
CHAPTER 1

APPENDIX A TRANSPLAN REPORT OF FINDINGS FOR SOUTH CHEYENNE



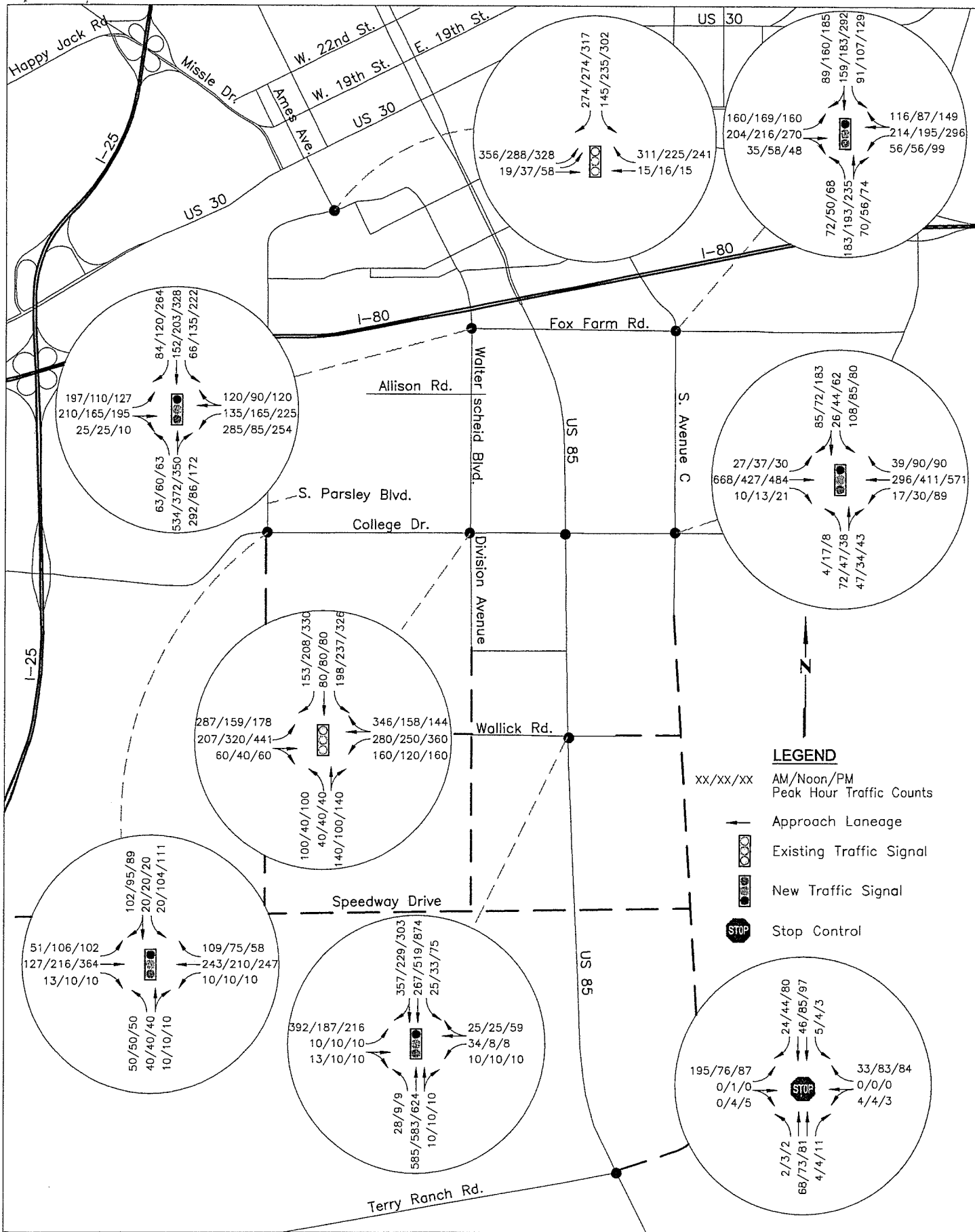
**SOUTH CHEYENNE COLLECTOR STREET PROJECT
YEAR 2020 DAILY PROJECTED VOLUMES**

Scale	1"=3500'	Date	3/13/03	Drawn by	RAC	Job #	ACATPP0201	Figure	1
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**SOUTH CHEYENNE COLLECTOR STREET PROJECT
 YEAR 2002 PEAK HOUR COUNT DATA**

Scale	1"=3500'	Date	3/13/03	Drawn by	RAC	Job #	ACATPP0201	Figure	2
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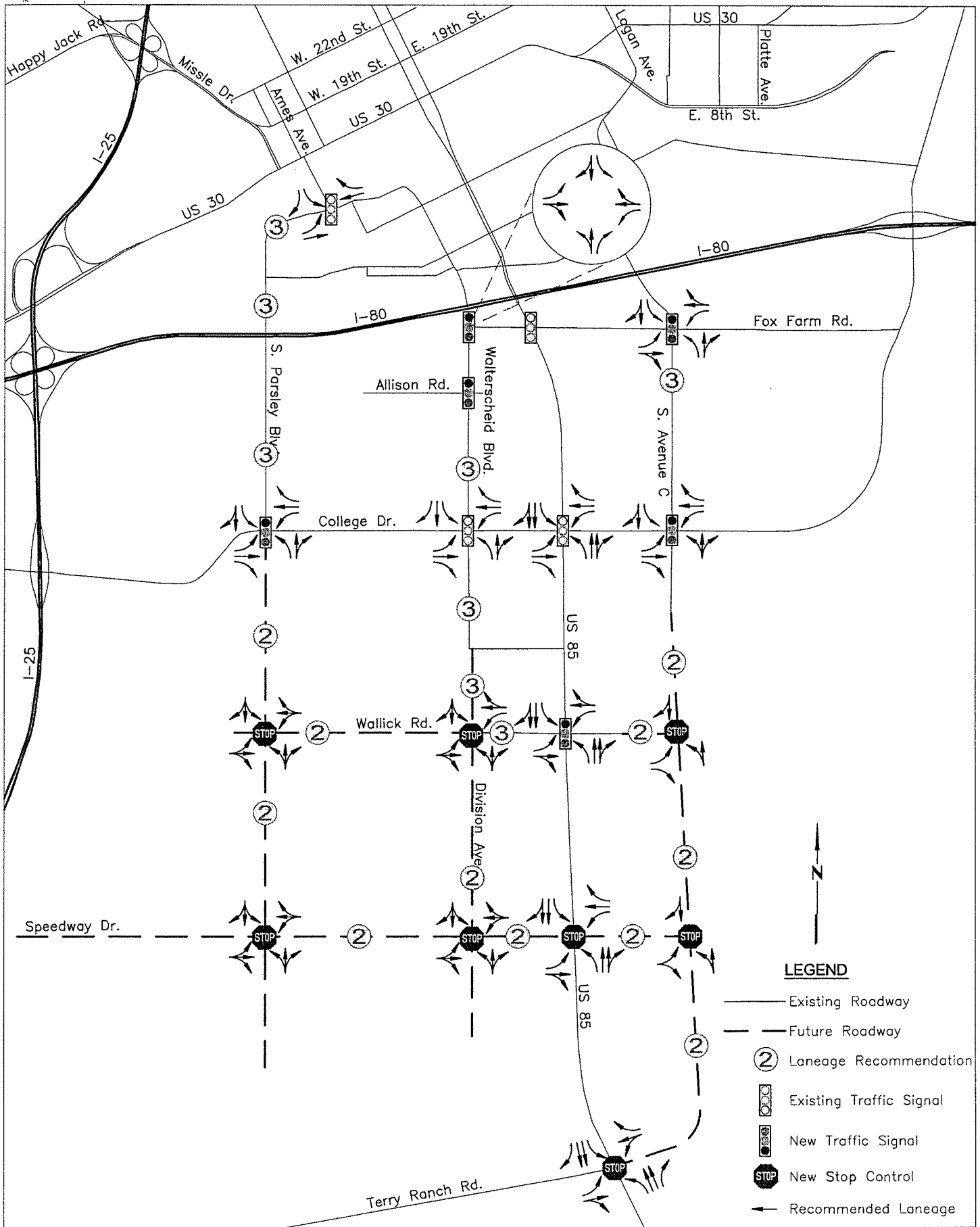


Table 1. Land Use Assumptions and Traffic Volume Projections

TAZ	Population		Dwelling Units		Employment Type			New Land Use (Year 2000 - Year 2020)				New Trips (Year 2020 - Year 2000)					Land Use (Year 2000)				Trips (Year 2000)				
	Year 2000	Year 2020	Year 2000	Year 2020	Type	Year 2000	Year 2020	Dwelling Units	General Commercial	Retail	School	Dwelling Units	General Commercial	Retail	School	Total	Dwelling Units	General Commercial	Retail	School	Dwelling Units	General Commercial	Retail	School	Total
								9.50	3.50	30.00	16.00	9.50	3.50	30.00	16.00		9.50	3.50	30.00	16.00	9.50	3.50	30.00	16.00	
176	7	0	3	0	G	225	300	(3)	75	-	-	(29)	263	-	-	234	75	-	-	-	713	-	-	-	713
177	116	1125	58	450	G	79	100	392	21	-	-	3,724	74	-	-	3,798	21	-	-	-	200	-	-	-	200
177					R		100	-	-	100	-	-	-	3,000	-	3,000	-	-	-	-	-	-	-	-	-
179	18	23	7	10	R	4	100	3	-	96	-	29	-	2,880	-	2,909	-	-	-	-	-	-	-	-	-
180	0	0	0	0	G	326	500	-	174	-	-	-	609	-	-	609	174	-	-	-	1,653	-	-	-	1,653
181	0	0	0	0	G	177	300	-	123	-	-	-	431	-	-	431	123	-	-	-	1,169	-	-	-	1,169
182	658	700	303	315		6	0	12	-	-	-	114	-	-	-	114	-	-	-	-	-	-	-	-	-
187	90	86	52	57	G	77	125	5	48	-	-	48	168	-	-	216	48	-	-	-	456	-	-	-	456
187					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
188	217	750	109	300	G	12	20	191	8	-	-	1,815	28	-	-	1,843	8	-	-	-	76	-	-	-	76
189	0	0	0	0	G	35	55	-	20	-	-	-	70	-	-	70	20	-	-	-	190	-	-	-	190
189					R		20	-	-	20	-	-	-	600	-	600	-	-	-	-	-	-	-	-	-
190	111	107	52	60	G	12	25	8	13	-	-	76	46	-	-	122	13	-	-	-	124	-	-	-	124
202	0	0	0	0	G	301	450	-	149	-	-	-	522	-	-	522	149	-	-	-	1,416	-	-	-	1,416
202					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
203	59	500	0	200	G		200	200	200	-	-	1,900	700	-	-	2,600	200	-	-	-	1,900	-	-	-	1,900
204	605	1250	255	500	G	135	150	245	15	-	-	2,328	53	-	-	2,380	15	-	-	-	143	-	-	-	143
205	0	250	0	100	G	127	100	100	(27)	-	-	950	(95)	-	-	856	(27)	-	-	-	(257)	-	-	-	(257)
205					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
206	104	120	22	60	C	11	200	38	189	-	-	361	662	-	-	1,023	189	-	-	-	1,796	-	-	-	1,796
206	0	0	0	0	F	66	110	-	-	-	44	-	-	-	704	704	-	-	-	-	-	-	-	-	-
207	246	240	70	80		2	0	10	-	-	-	95	-	-	-	95	-	-	-	-	-	-	-	-	-
208	327	0	116	0	C	13	15	(116)	2	-	-	(1,102)	7	-	-	(1,095)	2	-	-	-	19	-	-	-	19
208	0	0	0	0	F	28	30	-	-	-	2	-	-	-	32	32	-	-	-	-	-	-	-	-	-
208	327	500	0	200	G	15	25	200	10	-	-	1,900	35	-	-	1,935	10	-	-	-	95	-	-	-	95
209	234	437	94	175	G	18	35	81	17	-	-	770	60	-	-	829	17	-	-	-	162	-	-	-	162
209					R		40	-	-	40	-	-	-	1,200	-	1,200	-	-	-	-	-	-	-	-	-
210	542	875	252	350	G	98	80	98	(18)	-	-	931	(63)	-	-	868	(18)	-	-	-	(171)	-	-	-	(171)
210					R		20	-	-	20	-	-	-	600	-	600	-	-	-	-	-	-	-	-	-
211	806	1003	384	450	G	44	80	66	36	-	-	627	126	-	-	753	36	-	-	-	342	-	-	-	342
211					R		20	-	-	20	-	-	-	600	-	600	-	-	-	-	-	-	-	-	-
212	621	1000	281	400	R	48	75	119	-	27	-	1,131	-	810	-	1,941	-	-	-	-	-	-	-	-	-
213	224	1000	123	400	G	95	50	277	(45)	-	-	2,632	(158)	-	-	2,474	(45)	-	-	-	(428)	-	-	-	(428)
213					R		150	-	-	150	-	-	-	4,500	-	4,500	-	-	-	-	-	-	-	-	-
214	0	0	0	0	R	140	200	-	-	60	-	-	-	1,800	-	1,800	-	-	-	-	-	-	-	-	-
215	350	500	144	160	G	78	25	16	(53)	-	-	152	(186)	-	-	(34)	(53)	-	-	-	(504)	-	-	-	(504)
215					R		75	-	-	75	-	-	-	2,250	-	2,250	-	-	-	-	-	-	-	-	-
216	548	581	176	180	F	0	30	4	-	-	30	38	-	-	480	518	-	-	-	-	-	-	-	-	-
216	0	0	0	0	C	0	20	-	20	-	-	-	70	-	-	70	20	-	-	-	190	-	-	-	190
217	354	366	120	120	C	57	100	-	43	-	-	-	151	-	-	151	43	-	-	-	409	-	-	-	409
217	0	0	0	0	F	119	150	-	-	-	31	-	-	-	496	496	-	-	-	-	-	-	-	-	-
218	899	1005	320	320			0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
219	424	1312	140	525	G	0	100	385	100	-	-	3,658	350	-	-	4,008	100	-	-	-	950	-	-	-	950
219	0	0	0	0	F	21	150	-	-	-	129	-	-	-	2,064	2,064	-	-	-	-	-	-	-	-	-
219	0	0	0	0	C	7	80	-	73	-	-	-	256	-	-	256	73	-	-	-	694	-	-	-	694
219					R		100	-	-	100	-	-	-	3,000	-	3,000	-	-	-	-	-	-	-	-	-
220	779	1000	334	400	G	5	15	66	10	-	-	627	35	-	-	662	10	-	-	-	95	-	-	-	95
221	1069	1331	382	500	R	34	50	118	-	16	-	1,121	-	480	-	1,601	-	-	-	-	-	-	-	-	-
222	802	468	300	515	F	14	50	215	-	-	36	2,043	-	-	576	2,619	-	-	-	-	-	-	-	-	-
222	0	0	0	0	C	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
222	0	0	0	0	R	14	20	-	-	6	-	-	-	180	-	180	-	-	-	-	-	-	-	-	-
223	353	750	166	300	R	39	50	134	-	11	-	1,273	-	330	-	1,603	-	-	-	-	-	-	-	-	-
224	327	500	136	200	R	28	50	64	-	22	-	608	-	660	-	1,268	-	-	-	-	-	-	-	-	-
225	8	28	4	10	G	6	150	6	144	-	-	57	504	-	-	561	144	-	-	-	1,368	-	-	-	1,368
226	1338	1836	535	600	R	5	50	65	-	45	-	618	-	1,350	-	1,968	-	-	-	-	-	-	-	-	-
227	312	122	101	175		0	0	74	-	-	-	703	-	-	-	703	-	-	-	-	-	-	-	-	-
228	114	117	51	50		0	0	(1)	-	-	-	(10)	-	-	-	(10)	-	-	-	-	-	-	-	-	-
270	0	187	0	75	G	30	50	75	20	-	-	713	70	-	-	783	20	-	-	-	190	-	-	-	190
271	0	27	0	10	G	0	150	10	150	-	-	95	525	-	-	620	150	-	-	-	1,425	-	-	-	1,425
271					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
272	0	40	0	10		0	0	10	-	-	-	95	-	-	-	95	-	-	-	-	-	-	-	-	-
273	0	186	0	75	G	0	50	75	50	-	-	713	175	-	-	888	50	-	-	-	475	-	-	-	475
273					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
274	0	0	0	0			0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	0	0	0	0	G	3	100	-	97	-	-	-	340	-	-	340	97	-	-	-	922	-	-	-	922
275					R		50	-	-	50	-	-	-	1,500	-	1,500	-	-	-	-	-	-	-	-	-
276	0	0	0	0	G	51	50	-	(1)	-	-	-	(4)	-	-	(4)	(1)	-	-	-	(10)	-	-	-	(10)
276					R		25	-	-	25	-	-	-	750	-	750	-	-	-	-	-	-	-	-	-
Total	12,989	20,322	5,090	8,332	-	2,625	5,685	3,242	1,663	1,133	272	30,799	5,821	33,990	4,352	74,962	1,663	-	-	-	15,799	-	-	-	15,799

Employment Types	
G	General/Commercial
F	School Faculty
C	School Non-Faculty
R	Retail

Table 2. Year 2020 Projected Link Volumes

Corridor Segment	Year 2000 Volume	New Trips	Year 2020 Volume
Parsley Boulevard - College Drive to Ames Avenue	2,970	9,185	12,155
Waltersheid Boulevard - Fox Farm Road to College Drive	2,780	8,576	11,356
Division Avenue - College Drive to Wallick Road	-	3,355	3,355
Division Avenue - Wallick Road to South of Speedway Drive	-	1,578	1,578
Avenue C - Fox Farm Road to College Drive	4,535	2,195	6,730
Avenue C - College Drive to Wallick Road	625	2,134	2,759
Avenue C - Wallick Road to Terry Ranch Road	-	2,060	2,060
Wallick Road - Parsley Boulevard to Waltersshield Boulevard	-	1,444	1,444
Wallick Road - Waltersshield Boulevard to US 85	2,000	4,137	6,137
Wallick Road - US 85 to Avenue C	300	2,011	2,311
Speedway Drive - Parsley Boulevard to US 85	-	2,066	2,066
Speedway Drive - US 85 to Avenue C	-	796	796

Table 3. Cheyenne MPO Cross Section Descriptions

Designation	ROW / Roadway Width	Anticipated Daily Volume	Laneage	On-Street Parking / Bike Lanes
Urban Principal Arterial	120' / 76'	15,000 to 35,000	4 – 12' through lanes with a raised median	no / yes
Urban Minor Arterial	100' / 48'	3,500 to 15,000	2 – 12' through lanes with a center turn lane	no / yes
Urban Collector Street without Parking	80' / 36'	3,500 to 5,000	2 – 12' travel lanes	no / yes
Urban Collector Street without Parking	80' / 44'	3,500 to 5,000	2 – 11' travel lanes with a center turn lane	no / yes
Urban Collector Street with Parking	80' / 44'	1,000 to 3,500	2 – 11' travel lanes	joint bike / parking lane
Urban Collector Street with Parking	80' / 44'	1,000 to 3,500	2 – 11' travel lanes with a center turn lane	no / yes
Urban Local	60' / 36'	500 to 2,500	2 – 10' travel lanes	yes / no
Urban Local	60' / 36'	500 to 2,500	2 – 13' travel lanes with a center turn lane	yes / no
Urban Narrow Local Street	51' / 27'	< 500	1 – 20' travel lane	yes / no
Urban Commercial / Industrial Street	80' / 44'	1,000 to 3,500	44' roadway	yes / no

CHAPTER 1

APPENDIX B SOUTH CHEYENNE STREETS DRAINAGE BASIN ANALYSIS

Drainage Basin Analysis

South Cheyenne Collector Streets CHATPP

The South Cheyenne Collector Streets study area consists of nine major drainage basins see Fig. 1. The basins were delineated on a 1:24,000 scale United States Geological Survey Map. The basin areas and basin slopes were calculated and these results were entered into the Hydrolog program to produce the 25 - year and the 100 - year discharge. In turn these results were entered into the Haestad Methods Culvert Master program to size the culverts. This preliminary analysis assumed a 1% pipe slope, 100' pipe lengths and a maximum headwater to depth ratio of 1.5. The results are tabulated in Fig. 2.

The area between Walterscheid Blvd., and Avenue "C" and north of Wallick Rd. was not part of this study. The Allison Draw Channel has been constructed in this area with major culverts installed at College Dr., Prosser Rd., South Greeley Hwy. and Avenue "C". These culverts were designed by the NRCS using a 25 - year storm event.

Laramie County design standards currently use a 25 - year storm event to size culverts. The City of Cheyenne development standards use a 100 - year storm event for design of storm drainage features. At this time the 25 - year storm event standard is sufficient. However as further development of the South Cheyenne Collector Streets area occurs depending on land uses, densities etc. this standard may need to be reevaluated.

South Cheyenne Collector Streets
Major Drainage Basin Analysis
CHATTP

Drainage Basin	Area Acres	Culvert Location	25 Year Discharge cfs	Culvert Size	100 Year Discharge cfs	Culvert Size	Comment
1	63	Walterscheid Blvd	69	1 - 48" RCP	145	1 - 60" RCP	1 - 18" & 1 - 30" culvert existing
2	230	Walterscheid Blvd	145	1 - 60" RCP	280	2 - 60" RCP	2 - 24" & 1 - 30" culvert existing
3	5002	Division Ave.	775	1 - 10' x 8' Box Culvert	1460	2 - 10' x 8' Box Culvert	Allison Draw NRCS Design
4	2319	South Greeley Hwy	490	1 - 8' x 7' Box Culvert	905	1 - 12' x 9' Box Culvert	1 - 24" culvert existing
6	26	Sta. 197+00 Ave "C"	33	1 - 30" RCP	67	1 - 42" RCP	
7	69	Sta. 167+50 Ave "C"	67	1 - 42" RCP	135	1 - 60" RCP	
8	150	Sta. 131+00 Ave "C"	110	1 - 60" RCP	220	2 - 60" RCP	
4 & 5	2390	Sta. 211+50 Ave "C"	495	2 - 8' x 5' Box Culvert	915	4 - 7' x 5' Box Culvert	
6,7,8,9	1099	Sta. 80+00 Ave "C"	370	2 - 7' x 5' Box Culvert	715	3 - 8' x 5' Box Culvert	

Note : Preliminary analysis assumed 1% pipe slope, 100' pipe lengths and a maximum headwater to depth ratio of 1.5

Figure # 2

South Cheyenne Collector Streets
Major Drainage Basin Analysis
CHATTP

Drainage Basin	Area Acres	Culvert Location	25 Year Discharge cfs	Culvert Size	100 Year Discharge cfs	Culvert Size	Comment
1	63	Walterscheid Blvd	69	1- 48" RCP	145	1 - 60" RCP	1 - 18" & 1 - 30" culvert existing
2	230	Walterscheid Blvd	145	1 - 60" RCP	280	2 - 60" RCP	2 - 24" & 1 - 30" culvert existing
3	5002	Division Ave.	775	1 - 10' x 8' Box Culvert	1460	2 - 10' x 8' Box Culvert	Allison Draw NRCS Design
4	2319	South Greeley Hwy	490	1 - 8' x 7' Box Culvert	905	1 - 12' x 9' Box Culvert	1 - 24" culvert existing
6	26	Sta. 197+00 Ave "C"	33	1 - 30" RCP	67	1 - 42" RCP	
7	69	Sta. 167+50 Ave "C"	67	1 - 42" RCP	135	1 - 60" RCP	
8	150	Sta. 131+00 Ave "C"	110	1 - 60" RCP	220	2 - 60" RCP	
4 & 5	2390	Sta. 211+50 Ave "C"	495	2 - 8' x 5' Box Culvert	915	4 - 7' x 5' Box Culvert	
6,7,8,9	1099	Sta. 80+00 Ave "C"	370	2 - 7' x 5' Box Culvert	715	3 - 8' x 5' Box Culvert	

Note : Preliminary analysis assumed 1% pipe slope, 100' pipe lengths and a maximum headwater to depth ratio of 1.5

Basin 1

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
 Drainage area (acres) 63.00
 Basin slope (ft/mi) 630.24
 Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	9.	2.	1.
5.	24.	3.	2.
10.	41.	5.	3.
25.	69.	6.	5.
50.	110.	8.	8.
100.	145.	9.	10.
500.	315.	14.	21.

MEAN ANNUAL FLOW (Qa) = 0.007

Culvert Calculator Report

BASIN #1 25YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.48
Computed Headwater Elevation	105.93 ft	Discharge	69 cfs
Inlet Control HW Elev	105.00 ft	Tailwater Elevation	105.00 ft
Outlet Control HW Elev	105.93 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	6.00 ft
Slope Type	N/A	Normal Depth	1.95 ft
Flow Regime	N/A	Critical Depth	2.51 ft
Velocity Downstream	5.49 ft/s	Critical Slope	0.4 %
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	4.00 ft
Section Size	48 inch	Rise	4.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	105.93 ft	Upstream Velocity Head	0.47 ft
Ke	0.50	Entrance Loss	0.23 ft
Inlet Control Properties			
Inlet Control HW Elev	105.00 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	12.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

BASIN #1 100YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.14
Computed Headwater Elevation	105.72 ft	Discharge	145 cfs
Inlet Control HW Elev	105.52 ft	Tailwater Elevation	104.00 ft
Outlet Control HW Elev	105.72 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	5.00 ft
Slope Type	Steep	Normal Depth	2.67 ft
Flow Regime	Subcritical	Critical Depth	3.45 ft
Velocity Downstream	7.38 ft/s	Critical Slope	0.5 %
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	105.72 ft	Upstream Velocity Head	1.17 ft
Ke	0.50	Entrance Loss	0.59 ft
Inlet Control Properties			
Inlet Control HW Elev	105.52 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	19.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Basin 2

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
 Drainage area (acres) 230.02
 Basin slope (ft/mi) 264.5
 Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	22.	5.	2.
5.	55.	9.	4.
10.	89.	12.	7.
25.	145.	16.	10.
50.	215.	20.	15.
100.	280.	24.	18.
500.	595.	37.	36.

MEAN ANNUAL FLOW (Qa) = 0.023

Culvert Calculator Report

BASIN #2 25YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.14
Computed Headwater Elevation	105.72 ft	Discharge	145 cfs
Inlet Control HW Elev	105.52 ft	Tailwater Elevation	104.00 ft
Outlet Control HW Elev	105.72 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	5.00 ft
Slope Type	Steep	Normal Depth	2.67 ft
Flow Regime	Subcritical	Critical Depth	3.45 ft
Velocity Downstream	7.38 ft/s	Critical Slope	0.5 %
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	105.72 ft	Upstream Velocity Head	1.17 ft
Ke	0.50	Entrance Loss	0.59 ft
Inlet Control Properties			
Inlet Control HW Elev	105.52 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	19.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

BASIN #2 100YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.12
Computed Headwater Elevation	105.60 ft	Discharge	280 cfs
Inlet Control HW Elev	105.38 ft	Tailwater Elevation	104.00 ft
Outlet Control HW Elev	105.60 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	5.00 ft
Slope Type	Steep	Normal Depth	2.61 ft
Flow Regime	Subcritical	Critical Depth	3.39 ft
Velocity Downstream	7.13 ft/s	Critical Slope	0.4 %
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev	105.60 ft	Upstream Velocity Head	1.09 ft
Ke	0.50	Entrance Loss	0.54 ft
Inlet Control Properties			
Inlet Control HW Elev	105.38 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	39.3 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Basin 3

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
Drainage area (sq mi) 7.19
Basin slope (ft/mi) 254.59
Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	120.	37.	9.
5.	305.	74.	20.
10.	480.	104.	30.
25.	775.	149.	45.
50.	1130.	187.	63.
100.	1460.	229.	79.
500.	3030.	353.	149.

MEAN ANNUAL FLOW (Qa) = 0.323

Culvert Calculator Report

BASIN #3 25YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	110.00 ft	Headwater Depth/ Height	1.14
Computed Headwater Elevation	109.14 ft	Discharge	775 cfs
Inlet Control HW Elev	109.00 ft	Tailwater Elevation	106.00 ft
Outlet Control HW Elev	109.14 ft	Control Type	Entrance Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	7.00 ft
Slope Type	Steep	Normal Depth	3.99 ft
Flow Regime	N/A	Critical Depth	5.72 ft
Velocity Downstream	11.07 ft/s	Critical Slope	0.4 %
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	10.00 ft
Section Size	10 x 8 ft	Rise	8.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	109.14 ft	Upstream Velocity Head	2.86 ft
Ke	0.20	Entrance Loss	0.57 ft
Inlet Control Properties			
Inlet Control HW Elev	109.00 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 45 ° bevels	Area Full	80.0 ft²
K	0.49500	HDS 5 Chart	'10
M	0.66700	HDS 5 Scale	2
C	0.03140	Equation Form	2
Y	0.82000		

Culvert Calculator Report

BASIN #3 100YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	110.00 ft	Headwater Depth/ Height	1.11
Computed Headwater Elevation	108.87 ft	Discharge	1,460 cfs
Inlet Control HW Elev	108.65 ft	Tailwater Elevation	107.00 ft
Outlet Control HW Elev	108.87 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	8.00 ft
Slope Type	Steep	Normal Depth	3.82 ft
Flow Regime	Subcritical	Critical Depth	5.49 ft
Velocity Downstream	9.13 ft/s	Critical Slope	0.4 %
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	10.00 ft
Section Size	10 x 8 ft	Rise	8.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev	108.87 ft	Upstream Velocity Head	1.92 ft
Ke	0.20	Entrance Loss	0.38 ft
Inlet Control Properties			
Inlet Control HW Elev	108.65 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 45 ° bevels	Area Full	160.0 ft²
K	0.49500	HDS 5 Chart	'10
M	0.66700	HDS 5 Scale	2
C	0.03140	Equation Form	2
Y	0.82000		

Basin 4

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
 Drainage area (sq mi) 3.62
 Basin slope (ft/mi) 144.06
 Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	85.	23.	6.
5.	205.	45.	14.
10.	315.	63.	20.
25.	490.	90.	30.
50.	705.	112.	42.
100.	905.	137.	52.
500.	1870.	210.	98.

MEAN ANNUAL FLOW (Qa) = 0.177

Culvert Calculator Report

BASIN #4 25YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	108.00 ft	Headwater Depth/ Height	1.12
Computed Headwater Elevation	107.81 ft	Discharge	490 cfs
Inlet Control HW Elev	107.69 ft	Tailwater Elevation	106.00 ft
Outlet Control HW Elev	107.81 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	7.00 ft
Slope Type	Steep	Normal Depth	3.53 ft
Flow Regime	Subcritical	Critical Depth	4.89 ft
Velocity Downstream	8.75 ft/s	Critical Slope	0.4 %
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	8.00 ft
Section Size	8 x 7 ft	Rise	7.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	107.81 ft	Upstream Velocity Head	1.93 ft
Ke	0.20	Entrance Loss	0.39 ft
Inlet Control Properties			
Inlet Control HW Elev	107.69 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 45 ° bevels	Area Full	56.0 ft ²
K	0.49500	HDS 5 Chart	'10
M	0.66700	HDS 5 Scale	2
C	0.03140	Equation Form	2
Y	0.82000		

Culvert Calculator Report

BASIN #4 100YR

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	110.00 ft	Headwater Depth/ Height	1.00
Computed Headwater Elevation	108.99 ft	Discharge	905 cfs
Inlet Control HW Elev	108.84 ft	Tailwater Elevation	107.00 ft
Outlet Control HW Elev	108.99 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	1.0 %
Hydraulic Profile			
Profile	S1	Depth, Downstream	8.00 ft
Slope Type	Steep	Normal Depth	3.77 ft
Flow Regime	Subcritical	Critical Depth	5.61 ft
Velocity Downstream	9.43 ft/s	Critical Slope	0.3 %
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	12.00 ft
Section Size	12 x 9 ft	Rise	9.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	108.99 ft	Upstream Velocity Head	2.17 ft
Ke	0.20	Entrance Loss	0.43 ft
Inlet Control Properties			
Inlet Control HW Elev	108.84 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 45 ° bevels	Area Full	108.0 ft²
K	0.49500	HDS 5 Chart	'10
M	0.66700	HDS 5 Scale	2
C	0.03140	Equation Form	2
Y	0.82000		

Basin4-5

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
Drainage area (sq mi) 3.73
Basin slope (ft/mi) 139.82
Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	87.	24.	7.
5.	205.	46.	14.
10.	315.	65.	21.
25.	495.	92.	31.
50.	710.	115.	42.
100.	915.	140.	52.
500.	1880.	215.	98.

MEAN ANNUAL FLOW (Qa) = 0.181

Culvert Calculator Report

Basin # 4 - 5 25yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.18
Computed Headwater Elevation	105.88 ft	Discharge	495.00 cfs
Inlet Control HW Elev	105.00 ft	Tailwater Elevation	105.00 ft
Outlet Control HW Elev	105.88 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	6.00 ft
Slope Type	N/A	Normal Depth	2.16 ft
Flow Regime	N/A	Critical Depth	3.10 ft
Velocity Downstream	6.19 ft/s	Critical Slope	0.003629 ft/ft
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	8.00 ft
Section Size	8 x 5 ft	Rise	5.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev	105.88 ft	Upstream Velocity Head	0.59 ft
Ke	0.20	Entrance Loss	0.12 ft
Inlet Control Properties			
Inlet Control HW Elev	105.00 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 33.7 ° bevels	Area Full	80.0 ft²
K	0.48600	HDS 5 Chart	10
M	0.66700	HDS 5 Scale	3
C	0.02520	Equation Form	2
Y	0.86500		

Culvert Calculator Report

Basin # 4 - 5 100yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.20
Computed Headwater Elevation	105.99 ft	Discharge	915.00 cfs
Inlet Control HW Elev	105.00 ft	Tailwater Elevation	105.00 ft
Outlet Control HW Elev	105.99 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	6.00 ft
Slope Type	N/A	Normal Depth	2.30 ft
Flow Regime	N/A	Critical Depth	3.21 ft
Velocity Downstream	6.54 ft/s	Critical Slope	0.003977 ft/ft
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	7.00 ft
Section Size	7 x 5 ft	Rise	5.00 ft
Number Sections	4		
Outlet Control Properties			
Outlet Control HW Elev	105.99 ft	Upstream Velocity Head	0.66 ft
Ke	0.20	Entrance Loss	0.13 ft
Inlet Control Properties			
Inlet Control HW Elev	105.00 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 33.7 ° bevels	Area Full	140.0 ft²
K	0.48600	HDS 5 Chart	10
M	0.66700	HDS 5 Scale	3
C	0.02520	Equation Form	2
Y	0.86500		

Basin 6

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
Drainage area (acres) 25.98
Basin slope (ft/mi) 438.55
Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	4.	1.	0.
5.	12.	2.	1.
10.	20.	2.	2.
25.	33.	3.	3.
50.	51.	4.	4.
100.	67.	5.	5.
500.	145.	7.	11.

MEAN ANNUAL FLOW (Qa) = 0.003

Culvert Calculator Report

Basin # 6 25yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	103.50 ft	Headwater Depth/ Height	1.38
Computed Headwater Elevation	103.46 ft	Discharge	33.00 cfs
Inlet Control HW Elev	103.46 ft	Tailwater Elevation	101.50 ft
Outlet Control HW Elev	103.45 ft	Control Type	Inlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	1.71 ft
Slope Type	Steep	Normal Depth	1.70 ft
Flow Regime	N/A	Critical Depth	1.96 ft
Velocity Downstream	9.24 ft/s	Critical Slope	0.007095 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	2.50 ft
Section Size	30 inch	Rise	2.50 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	103.45 ft	Upstream Velocity Head	1.00 ft
Ke	0.50	Entrance Loss	0.50 ft
Inlet Control Properties			
Inlet Control HW Elev	103.46 ft	Flow Control	Submerged
Inlet Type	End-Section Conforming to fill slope	Area Full	4.9 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

Basin # 6 100yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	104.50 ft	Headwater Depth/ Height	1.26
Computed Headwater Elevation	104.40 ft	Discharge	67.00 cfs
Inlet Control HW Elev	104.27 ft	Tailwater Elevation	102.50 ft
Outlet Control HW Elev	104.40 ft	Control Type	Entrance Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	3.50 ft
Slope Type	Steep	Normal Depth	2.09 ft
Flow Regime	N/A	Critical Depth	2.57 ft
Velocity Downstream	6.96 ft/s	Critical Slope	0.005629 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	104.40 ft	Upstream Velocity Head	1.22 ft
Ke	0.50	Entrance Loss	0.61 ft
Inlet Control Properties			
Inlet Control HW Elev	104.27 ft	Flow Control	Transition
Inlet Type	End-Section Conforming to fill slope	Area Full	9.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Basin 7

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
 Drainage area (acres) 68.99
 Basin slope (ft/mi) 384.04
 Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	9.	2.	1.
5.	24.	4.	2.
10.	41.	5.	3.
25.	67.	7.	5.
50.	105.	8.	8.
100.	135.	10.	10.
500.	295.	15.	19.

MEAN ANNUAL FLOW (Qa) = 0.008

Culvert Calculator Report

Basin # 7 25yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	104.50 ft	Headwater Depth/ Height	1.26
Computed Headwater Elevation	104.40 ft	Discharge	67.00 cfs
Inlet Control HW Elev	104.27 ft	Tailwater Elevation	102.50 ft
Outlet Control HW Elev	104.40 ft	Control Type	Entrance Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	CompositeS1S2	Depth, Downstream	3.50 ft
Slope Type	Steep	Normal Depth	2.09 ft
Flow Regime	N/A	Critical Depth	2.57 ft
Velocity Downstream	6.96 ft/s	Critical Slope	0.005629 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	3.50 ft
Section Size	42 inch	Rise	3.50 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	104.40 ft	Upstream Velocity Head	1.22 ft
Ke	0.50	Entrance Loss	0.61 ft
Inlet Control Properties			
Inlet Control HW Elev	104.27 ft	Flow Control	Transition
Inlet Type	End-Section Conforming to fill slope	Area Full	9.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

Basin # 7 100yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.10
Computed Headwater Elevation	105.49 ft	Discharge	135.00 cfs
Inlet Control HW Elev	105.24 ft	Tailwater Elevation	104.00 ft
Outlet Control HW Elev	105.49 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	S1	Depth, Downstream	5.00 ft
Slope Type	Steep	Normal Depth	2.55 ft
Flow Regime	Subcritical	Critical Depth	3.33 ft
Velocity Downstream	6.88 ft/s	Critical Slope	0.004395 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	105.49 ft	Upstream Velocity Head	1.01 ft
Ke	0.50	Entrance Loss	0.51 ft
Inlet Control Properties			
Inlet Control HW Elev	105.24 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	19.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Basin 8

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
 Drainage area (acres) 150.02
 Basin slope (ft/mi) 303.69
 Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	16.	4.	2.
5.	42.	6.	3.
10.	68.	9.	5.
25.	110.	12.	8.
50.	170.	14.	12.
100.	220.	17.	15.
500.	470.	27.	29.

MEAN ANNUAL FLOW (Qa) = 0.016

Culvert Calculator Report

Basin # 8 25yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	105.50 ft	Headwater Depth/ Height	1.08
Computed Headwater Elevation	105.42 ft	Discharge	110.00 cfs
Inlet Control HW Elev	104.53 ft	Tailwater Elevation	104.50 ft
Outlet Control HW Elev	105.42 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	CompositePressureS1	Depth, Downstream	5.50 ft
Slope Type	N/A	Normal Depth	2.27 ft
Flow Regime	Subcritical	Critical Depth	2.99 ft
Velocity Downstream	5.60 ft/s	Critical Slope	0.003986 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	1		
Outlet Control Properties			
Outlet Control HW Elev	105.42 ft	Upstream Velocity Head	0.52 ft
Ke	0.50	Entrance Loss	0.26 ft
Inlet Control Properties			
Inlet Control HW Elev	104.53 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	19.6 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

Culvert Calculator Report

Basin # 8 100yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	105.50 ft	Headwater Depth/ Height	1.08
Computed Headwater Elevation	105.42 ft	Discharge	220.00 cfs
Inlet Control HW Elev	104.53 ft	Tailwater Elevation	104.50 ft
Outlet Control HW Elev	105.42 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	99.00 ft
Length	100.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	CompositePressureS1	Depth, Downstream	5.50 ft
Slope Type	N/A	Normal Depth	2.27 ft
Flow Regime	Subcritical	Critical Depth	2.99 ft
Velocity Downstream	5.60 ft/s	Critical Slope	0.003985 ft/ft
Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	5.00 ft
Section Size	60 inch	Rise	5.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev	105.42 ft	Upstream Velocity Head	0.52 ft
Ke	0.50	Entrance Loss	0.26 ft
Inlet Control Properties			
Inlet Control HW Elev	104.53 ft	Flow Control	Unsubmerged
Inlet Type	End-Section Conforming to fill slope	Area Full	39.3 ft ²
K	0.00980	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	1
C	0.03980	Equation Form	1
Y	0.67000		

WYOMING USGS REGIONAL HYDROLOGY STUDY

HYDROLOGIC REGION # 3
Drainage area (sq mi) 1.72
Basin slope (ft/mi) 268.96
Geographic Factor 1

FREQUENCY (yr)	DISCHARGE (cfs)	PEAK VOLUME (ac-ft)	VOLUME (ac-ft)
2.	57.	14.	5.
5.	145.	27.	10.
10.	230.	37.	15.
25.	370.	52.	24.
50.	550.	64.	33.
100.	715.	78.	42.
500.	1500.	120.	80.

MEAN ANNUAL FLOW (Qa) = 0.092

Culvert Calculator Report

Basin # 6 - 9 25yr

Solve For: Section Size

Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.16
Computed Headwater Elevation	105.78 ft	Discharge	370.00 cfs
Inlet Control HW Elev	105.00 ft	Tailwater Elevation	105.00 ft
Outlet Control HW Elev	105.78 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	98.00 ft
Length	200.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	1.98 ft
Flow Regime	N/A	Critical Depth	2.79 ft
Velocity Downstream	5.29 ft/s	Critical Slope	0.003822 ft/ft
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	7.00 ft
Section Size	7 x 5 ft	Rise	5.00 ft
Number Sections	2		
Outlet Control Properties			
Outlet Control HW Elev	105.78 ft	Upstream Velocity Head	0.43 ft
Ke	0.20	Entrance Loss	0.09 ft
Inlet Control Properties			
Inlet Control HW Elev	105.00 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 33.7 ° bevels	Area Full	70.0 ft ²
K	0.48600	HDS 5 Chart	10
M	0.66700	HDS 5 Scale	3
C	0.02520	Equation Form	2
Y	0.86500		

Culvert Calculator Report

Basin # 6 - 9 100yr

Solve For: Section Size

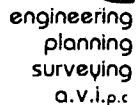
Culvert Summary			
Allowable HW Elevation	106.00 ft	Headwater Depth/ Height	1.19
Computed Headwater Elevation	105.97 ft	Discharge	715.00 cfs
Inlet Control HW Elev	105.00 ft	Tailwater Elevation	105.00 ft
Outlet Control HW Elev	105.97 ft	Control Type	Outlet Control
Grades			
Upstream Invert	100.00 ft	Downstream Invert	98.00 ft
Length	200.00 ft	Constructed Slope	0.010000 ft/ft
Hydraulic Profile			
Profile	Pressure	Depth, Downstream	7.00 ft
Slope Type	N/A	Normal Depth	2.10 ft
Flow Regime	N/A	Critical Depth	3.02 ft
Velocity Downstream	5.96 ft/s	Critical Slope	0.003607 ft/ft
Section			
Section Shape	Box	Mannings Coefficient	0.013
Section Material	Concrete	Span	8.00 ft
Section Size	8 x 5 ft	Rise	5.00 ft
Number Sections	3		
Outlet Control Properties			
Outlet Control HW Elev	105.97 ft	Upstream Velocity Head	0.55 ft
Ke	0.20	Entrance Loss	0.11 ft
Inlet Control Properties			
Inlet Control HW Elev	105.00 ft	Flow Control	Unsubmerged
Inlet Type	90 ° headwall w 33.7 ° bevels	Area Full	120.0 ft ²
K	0.48600	HDS 5 Chart	10
M	0.66700	HDS 5 Scale	3
C	0.02520	Equation Form	2
Y	0.86500		



(307) 637-6017
Fax: (307) 632-9326
2035 Westland Rd.
Cheyenne, WY 82001

Project: SOUTH CHEYENNE COLLECTOR STREETS	Page:
Location:	Date: 10-22-02
Product: BASIN ANALYSIS	By: ASC
Client: CHATPP	Checked:

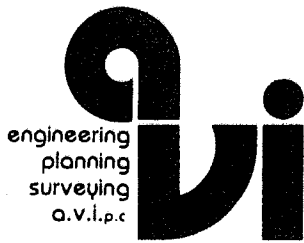
BASIN	AREA		CONTOUR LENGTH		CONTOUR INTERVAL	BASIN SLOPE (ft/mile)
	ACRES	m ²	FEET	MILES		
1	63	.0984375	3298	0.62	100	630.24
2	230	0.3594	5019	.9506	100	264.50
3 (ALLISON)	5002	7.8156	105,055	19.8968	100	254.59
4	2319	3.6234	27,570	5.22	100	144.06
5	71	0.1109	10,006	1.8951	10	170.88
6	26	0.0406	1,800	0.3561	50	438.55
7	69	0.1078	4,372	0.828	50	384.04
8	150	0.2344	7,536	1.4273	50	303.69
9	854	1.3344	34,984	6.6258	50	248.27
6+7+8+9	1099	1.7172	48,772	9.2371	50	268.96
4+5	2,390	3.7344	27,570	5.22	100	139.82
1	$0.62(100) / 0.098375 = 630.24$					
2	$0.9506(100) / 0.3594 = 264.50$					
3	$19.8968(100) / 7.8156 = 254.59$					
4	$5.22(100) / 3.6234 = 144.06$					
5	$1.8951(10) / 0.1109 = 170.88$					
6	$0.3561(50) / 0.0406 = 438.55$					
7	$0.828(50) / 0.1078 = 384.04$					
8	$1.4273(50) / 0.2344 = 303.69$					
9	$6.6258(50) / 1.3344 = 248.27$					



(307) 637-6017
Fax: (307) 632-9326
2035 Westland Rd.
Cheyenne, WY 82001

Project: SOUTH CHEYENNE COLLECTOR STREETS	Page: 1
Location:	Date: 10-22-02
Product: DRAINAGE BASINS	By: RSC
Client: CHATPP	Checked:

				$\frac{27,876,400 SF}{1 SM}$	$\frac{43560 SF}{1 AC}$
1	63 AC = .09043753 M	LGTH	3,290'	$\times 100$	
2	230 AC = 1'		1890' + 3129' = 5019'	$\times 100$	
3	5002 AC (ALLISON)		100x(40,722 + 37209 + 22,789 + 1491 + 2227 + 617)		
4	2319 AC		(19,307' + 7371.6' + 892' = 27,570')	$\times 100$	
5	71 AC		x 10 (830' + 820' + 902' + 1361' + 2095' + 2370' + 1532')		
6	26 AC		x 50 (530' + 1342')		
7	69 AC		x 50 (2351 + 2021)		
8	150 AC		x 50 (2014 + 2240 + 2474)		
9	85A AC		x 50 (7110 + 1122 + 869 + 839 + 405 + 685 + 16,031 + 1050 + 3575 + 2707 + 503)		



(307) 637-6017
Fax: (307) 632-9326
2035 Westland Rd.
Cheyenne, WY 82001

Project:	Page:
Location:	Date:
Product:	By:
Client:	Checked:

$$63 \text{ AC} \times \frac{43560 \text{ SF}}{\text{AC}} \times \frac{154}{27,070,400 \text{ SF}} = .0984375 \text{ SA1}$$

CHAPTER 1

APPENDIX C ***SOUTH CHEYENNE STREET*** ***ADJACENT LANDOWNER CONTACT LETTER***

November 4, 2002

2-2380.02

FIELD(Name)

FIELD(Address)

FIELD(City, State Zip)

Dear FIELD(Name):

We are currently under contract with the Cheyenne Area Transportation Planning Process (ChATPP) for the South Cheyenne Collector Streets Plan. This plan will become part of a Master Plan to guide future development of South Cheyenne. We are soliciting your input on any future growth, development and land use in this area.

Please submit your written comments to :

AVI, p.c.

2035 Westland Road

Cheyenne, WY 82001

By November 15, 2002

If you have any questions call 637-6017.

Sincerely,

A.V.I. PROFESSIONAL CORPORATION

R. Scott Cowley, P.E.

Vice President

RSC/jst

Marten Petersen
247 Lakeshore Drive
Cheyenne, WY 82009

Ed Murray
1616 Warren Avenue, Ste 21
Cheyenne, WY 82001

Dennis Auker
LCSD #1
2810 House Avenue
Cheyenne, WY 82001

Wallace Powers
1330 Apple Street
Cheyenne, WY 82007

Angelina Louise Sara
3921 Frontier Park Avenue
Cheyenne, WY 82001

South Fork MHS, LLC
506 Shoshoni Street
Cheyenne, WY 82009

Michael James Sara
6122 Kevin Avenue
Cheyenne, WY 82009

CAL-WYO Investments
15928 Venture Blvd., #205
Encino, CA 91436

Arp & Hammond Hardware Co.
P.O. Box 827
Cheyenne, WY 82003-0827

Peter Pontillo
115 E. Wallick Road
Cheyenne, WY 82007

Joanne R. McHenry
2005 Gordon Road
Cheyenne, WY 82009

Rock Edward Pontillo
609 Pontillo Drive
Cheyenne, WY 82007-9720

Lummis Livestock Co., LLC
1825 Campstool Road
Cheyenne, WY 82007

Bill Edwards
P.O. Box 2630
Cheyenne, WY 82003-2630

William Sara
3820 Central Avenue
Cheyenne, WY 82001

Leo Perino
1214 Oil Creek Road
Newcastle, WY 82701

Diane Boyer
5338 Hacker Circle
Cheyenne, WY 82009

SWAN Ranch, LLC
1961 Torrington Hwy
Cheyenne, WY 82009

CHAPTER 1

APPENDIX D ***SOUTH CHEYENNE PHOTO LOG 10/03***

SOUTH CHEYENNE PHOTO LOG 10/03

DCP00464	AVE "C" @ FOX FARM LOOKING SOUTH
DCP00465	AVE "C" @ ALLISON DRAW LOOKING SOUTH
DCP00466	CULVERT INLET @ AVE "C" & COLLEGE DRIVE
DCP00467	AVE "C" @ COLLEGE DRIVE LOOKING SOUTH
DCP00468	AVE "C" @ MURRAY ROAD LOOKING SOUTH
DCP00469	AVE "C" @ ARTESIAN LOOKING NORTH
DCP00470	AVE "C" @ ARTESIAN LOOKING SOUTH
DCP00471	GAS LINE MARKER @ AVE "C" & ARTESIAN
DCP00472	PETROLEUM LINE MARKER @ AVE "C" & ARTESIAN
DCP00473	WALLICK ROAD EAST OF S. GREELEY LOOKING WEST
DCP00474	WALLICK ROAD EAST OF S. GREELEY LOOKING EAST
DCP00475	WALLICK ROAD SECTION LINE MONUMENT
DCP00476	AVE "C" AT WALLICK ROAD LOOKING WEST
DCP00477	AVE "C" AT WALLICK ROAD LOOKING NORTH
DCP00478	AVE "C" @ WALLICK ROAD LOOKING SOUTH
DCP00479	WALLICK ROAD WEST OF S. GREELEY LOOKING EAST (AFFLERBACH SCHOOL ON LEFT)
DCP00480	WALLICK ROAD WEST OF S. GREELEY LOOKING WEST
DCP00481	WALLICK ROAD @ DIVISION LOOKING SOUTH
DCP00482	WALLICK ROAD @ DIVISION LOOKING EAST
DCP00483	WALLICK ROAD @ DIVISION LOOKING NORTH
DCP00484	WALLICK ROAD WEST OF DIVISION LOOKING EAST
DCP00485	WALLICK ROAD WEST OF DIVISION LOOKING WEST
DCP00486	TERRY RANCH ROAD WEST OF S. GREELEY LOOKING EAST
DCP00487	S. GREELEY HWY @ PORT OF ENTRY LOOKING EAST
DCP00488	DIVISION AVE @ DASHIA LOOKING NORTH

DCP00489	WALTERSCHEID @ COLLEGE LOOKING NORTH
DCP00490	WALTERSCHEID @ COLLEGE LOOKING SOUTH
DCP00491	PARSLEY @ COLLEGE LOOKING NORTH
DCP00492	PARSLEY @ COLLEGE LOOKING SOUTH
DCP00493	PARSLEY @ I-80 OVERPASS LOOKING NORTH
DCP00494	PARSLEY @ I-80 OVERPASS LOOKING NORTH
DCP00495	PARSLEY @ PACIFIC AVE LOOKING SOUTH
DCP00496	PARSLEY @ PACIFIC AVE LOOKING NORTHEAST
DCP00497	WALTERSCHEID @ FOX FARM LOOKING SOUTH
DCP00498	WALTERSCHEID @ FOX FARM LOOKING NORTH



DCP00464



DCP00465



DCP00466



DCP00467



DCP00468



DCP00469



DCP00470



DCP00471



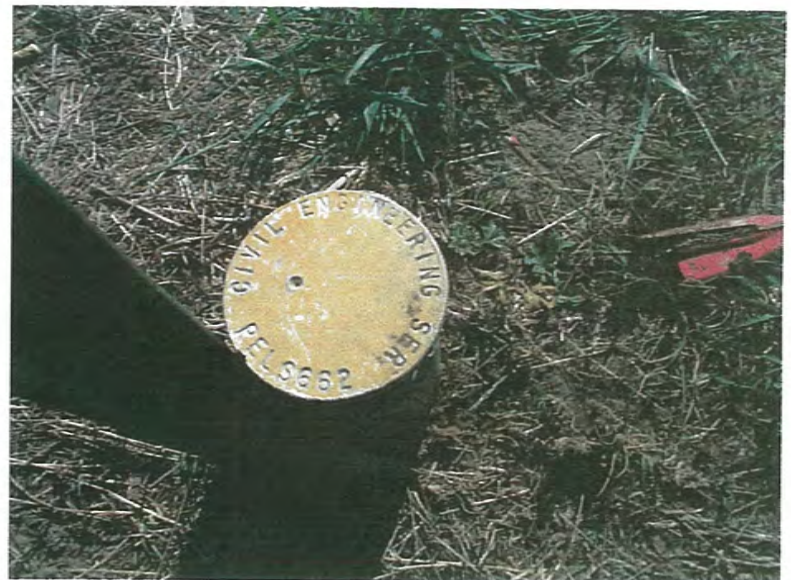
DCP00472



DCP00473



DCP00474



DCP00475



DCP00476



DCP00477



DCP00478



DCP00479



DCP00480



DCP00481



DCP00482



DCP00483



DCP00484



DCP00485



DCP00486



DCP00487



DCP00488



DCP00489



DCP00490



DCP00491



DCP00492



DCP00493



DCP00494



DCP00495



DCP00496



DCP00497



DCP00498

CHAPTER 1

APPENDIX E ***OTHER MISCELLANEOUS INFORMATION***

Fax Cover Sheet

Name: Joe Henderson
Organization:
Fax: 303-442-3139
From: Daryl G. Johnson
Date: August 29, 2002
Subject: CHATPP Typical Street Sections
Pages: 9

☐

Urgent

☐

Reply ASAP

☐

Please Comment

☒

For Your Records

Comments:

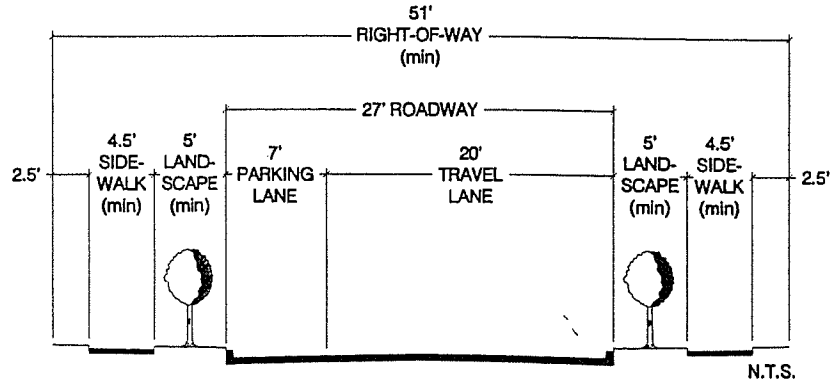
Typical sections from the Final Draft of CHATPP Road, Street and Site Planning Design Standards Dated February 2001. Verified with Tom Mason that these were the sections to use. Also included the chart from the current standards which has some additional information not included on the new sections.

Thank you.

Daryl G. Johnson

From the desk of...
Daryl G. Johnson
AVI pc
Cheyenne, WY 82001

Urban Narrow Local Street (Lane) (used with alleys only)



Roadway Width: 27'

Right-of-Way Width: 51' (min.)

Travel Lane: One lane, 20' wide

Parking: One lane, 7' wide

Parkway: 5' (min.) wide. Parkway shall be landscaped.

Sidewalk: 4.5' (min.) wide. Sidewalks shall be in the public right of way.

Maximum Grade: 10 percent

Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: Residential local streets where traffic volume on the street is anticipated to be 500 vpd. or less (unless the narrow residential local street or rural residential local street standards are used)

Speed Limit: 25 MPH

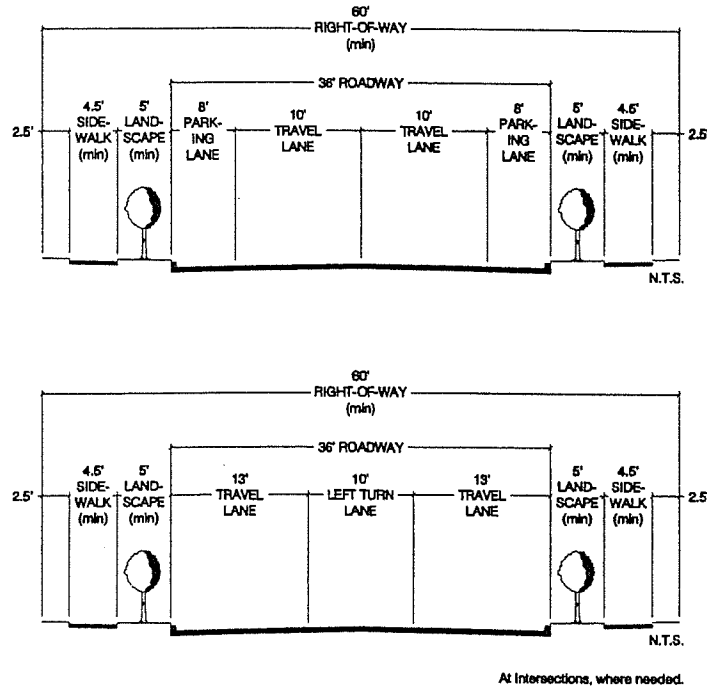
Curb And Gutter: Vertical Curb and Gutter.

Utilities: Main lines for water, sewer, and storm drains shall be placed under the street with individual taps running to the property line. Electric, gas, cable television, telephone lines, and other utilities shall be placed to the outside edge of the Right-of-Way and under the sidewalk. To the greatest extent feasible, utilities should not encroach on the landscaped parkway.

If approved by the City Engineer or County Director of Public Works, utilities may be placed in easements outside the right of way, and the cross section may be varied if necessary to accommodate utilities.

Urban Local Street

Roadway Width: 36'



At Intersections, where needed.

Right-of-Way Width: 60' (min.)

Travel Lanes: 2 lanes 10' wide

Left Turn Lane: 10' wide, provided where necessary.

Bike Lanes: Bicyclists shall share the roadway with motor vehicles in the travel lanes. Additional street width may be required to the parking lanes to provide 11' wide combined parking + bike lanes to accommodate bike traffic within and leading to activity area.

Parking: 2 lanes, 8' wide, Intersections only none

Parkway: 5' (min.) wide. Parkways shall be landscaped.

Sidewalk: 4.5' (min.) wide. Sidewalks shall be in the public right of way.

Maximum Grade: 10 percent

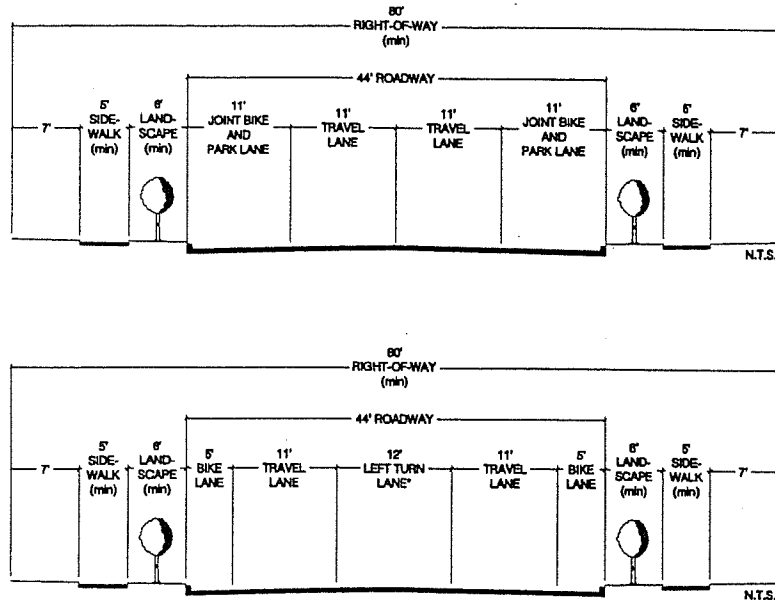
Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: All Local streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 500 to 2,500 vpd.

Speed Limit: 25 MPH

Urban Collector Street With Parking



At Intersections, where needed.

*If a continuous left turn lane is required, additional ROW shall be required

Roadway Width: 44'

Right-of-Way Width: 80' (min.)

Travel Lanes: 2 lanes, 11' wide.

Left Turn Lane: 12' at intersections where needed.

Bike Lanes: Bicyclists shall share an 11' wide lane with parked vehicles. At the intersection, the bike lane shall be 5' wide with parked vehicles prohibited.

Parking: Two lanes 11' wide shared with bikes. None provided at intersections

Parkway: 6' (min.) width. Parkway shall be landscaped.

Sidewalk: 5' (min.) width. Sidewalks shall be in the public right of way.

Median: None

Maximum Grade: 10 percent

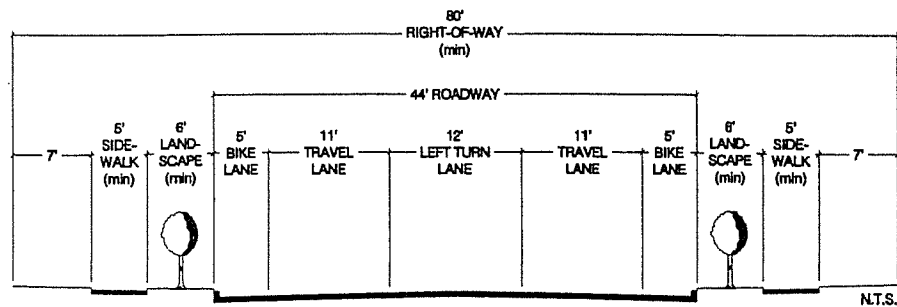
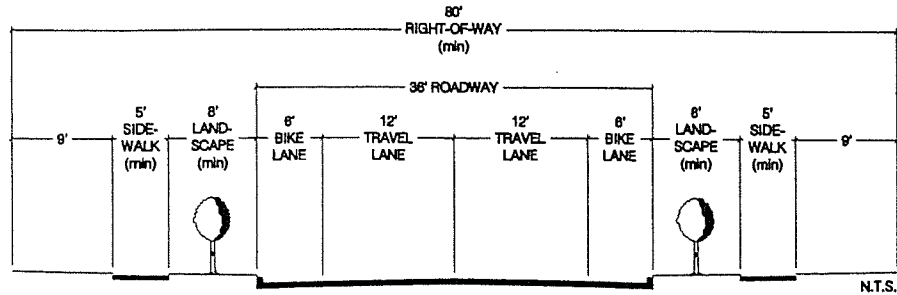
Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: All Collector streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 1,000 to 3,500 vpd.

Speed Limit: 30-35 MPH.

Urban Collector Street Without Parking



At intersections, where needed.

Roadway Width: 36'. 44' with left turn lane.

Right-of-Way Width: 80' (min.).

Travel Lanes: Two lanes, 12' wide.

Left Turn Lane: 12', at intersections where needed.

Bike Lanes: Two lanes, 6' wide. At intersections the bike lanes shall be 5' wide.

Parking: None

Parkway: 8' (min.) width. At intersections where a left turn lane is necessary, parkways shall be 6' (min.). Parkway shall be landscaped.

Sidewalk: 5' (min.) wide. Sidewalks shall be in the public right of way.

Median: None

Maximum Grade: 10 percent

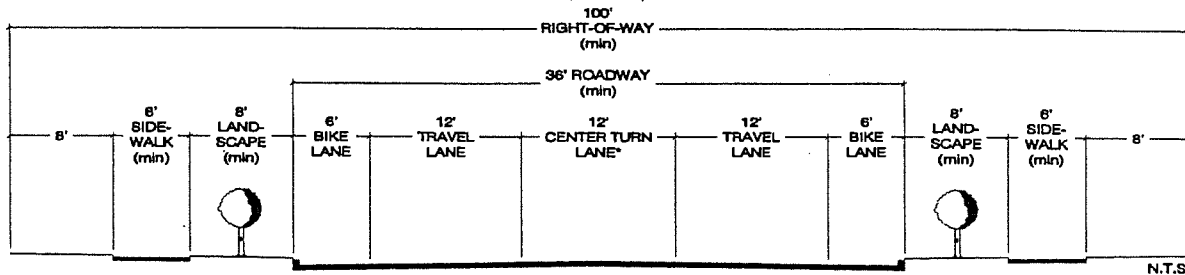
Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: All Collector streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 3,500 to 5,000 vpd.

Speed Limit: 30-35 MPH

Urban Minor Arterial Street



*Continuous left turn lane as determined by the Local Entity. Additional auxiliary lanes may be needed as determined by the Local Entity.

Roadway Width: 36' (min.)

Right-of-Way Width: 100' (min.).

Travel Lanes: 2 lanes, 12' wide. Additional auxiliary lanes may be provided for as determined by Local Entity.

Left Turn Lane: 12' wide at intersections. 12' Continuous left turn lane as determined by Local Entity.

Bike Lanes: 2 lanes, 6' wide.

Parking: None.

Parkway: 8' (min.) wide. Parkway shall be landscaped.

Sidewalk: 6' (min.) wide if detached by at least 8'. 8' (min.) attached for redevelopment. Sidewalks shall be in the public right of way.

Median: None

Maximum Grade: 6 percent

Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: All Minor Arterial streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 3,500 to 15,000 vpd.

Speed Limit: 30-45 MPH

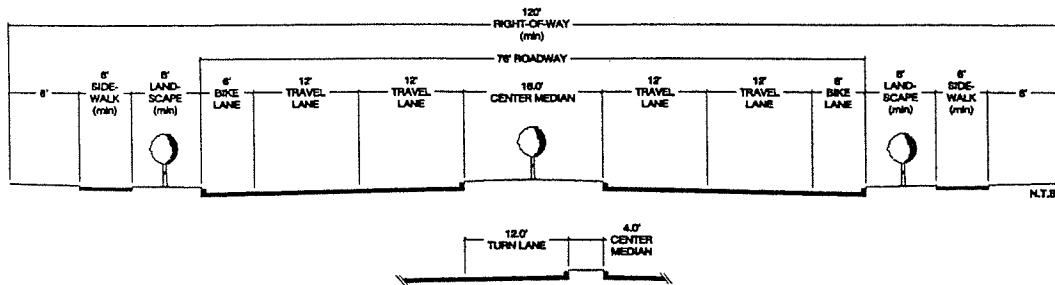
Access: Access will be limited. See Chapter 4.

Curb And Gutter: Vertical Curb and Gutter.

Utilities: Main lines for water, sewer, and storm drains shall be placed under the street with individual taps running to the property line. Electric, gas, cable television, telephone lines, and other utilities shall be placed to the outside edge of the Right-of-Way and under the sidewalk. To the greatest extent feasible, utilities should not encroach on the landscaped parkway.

If approved by the City Engineer or County Director of Public Works, utilities may be placed in easements outside the right of way, and the cross section may be varied if necessary to accommodate utilities.

Urban Principal Arterial Street



Roadway Width: 76'

Right-of-Way Width: 120' (min.)

Travel Lanes: 4 lanes, 12' wide.

Left Turn Lane: 12' wide.

Bike Lanes: 2 lanes, 6' wide.

Parking: None.

Parkway: 8' (min.) wide. Parkways shall be landscaped.

Sidewalk: 6' (min.) wide if detached by at least 8'. 8' (min.) attached for redevelopment. Sidewalks shall be in the public right of way.

Median: 16' wide landscaped and 4' wide landscaped in left turn lane areas.

Maximum Grade: 6 percent **Minimum Grade:** 0.3 percent

Maximum Superelevation: 0.6

Where Used: All Principal Arterial streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 15,000 to 35,000 vpd..

Speed Limit: 35-45 MPH.

Access: Access will be limited. See Chapter 4.

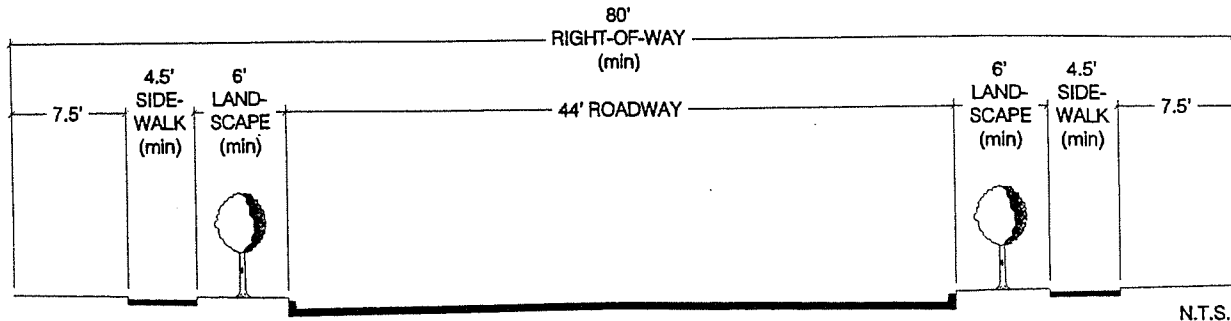
Median Landscaping: Landscaping shall include trees, shrubs, ground cover, mulch and irrigation and should incorporate xeriscape methods, whenever appropriate in accordance with the requirements of the City Forester.

Curb And Gutter: Vertical Curb and Gutter.

Utilities: Main lines for water, sewer, and storm drains shall be placed under the street with individual taps running to the property line. Electric, gas, cable television, telephone lines, and other utilities shall be placed to the outside edge of the Right-of-Way and under the sidewalk. To the greatest extent feasible, utilities should not encroach on the landscaped parkway.

If approved by the City Engineer or County Director of Public Works, utilities may be placed in easements outside the right of way, and the cross section may be varied if necessary to accommodate utilities.

Urban Commercial/Industrial Local Street



Roadway Width: 44'

Right-of-Way Width: 80' (min.)

Bike Lanes: Share Street

Parking: Two lanes shared with bikes. None provided at intersections

Parkway: 6' (min.) width. Parkway shall be landscaped.

Sidewalk: 4.5' (min.) width. Sidewalks shall be in the public right of way.

Median: None

Maximum Grade: 10 percent

Minimum Grade: 0.3 percent

Maximum Superelevation: .04

Where Used: All Collector streets shown on the Master Street Plan when the traffic volume on the street is anticipated to be 1,000 to 3,500 vpd.

Speed Limit: 30-35 MPH.

Access: See Chapter 4.

Curb And Gutter: Vertical Curb and Gutter.

Utilities: Main lines for water, sewer, and storm drains shall be placed under the street with individual taps running to the property line. Electric, gas, cable television, telephone lines, and other utilities shall be placed to the outside edge of the Right-of-Way and under the sidewalk. To the greatest extent feasible, utilities should not encroach on the landscaped parkway.

If approved by the City Engineer or County Director of Public Works, utilities may be placed in easements outside the right of way, and the cross section may be varied if necessary to accommodate utilities.

TABLE VI-1
CHATPP STREET STANDARDS

	PRINCIPAL ARTERIALS	MINOR ARTERIALS	COLLECTOR	LOCAL STREETS			COMMERCIAL	INDUSTRIAL
				RESIDENTIAL LOW VOL.	RESIDENTIAL HIGH VOL.	COUNTY ^b		
Min. R/W Width (1)	120'	100'	80'	52'	60'	80'	80'	80'
Min. roadway width (2)	64'	44'	40' 60'	32' ^a	40'	24'	44'	44'
Min. no. & width of dr. lanes	4@12'	2@12'	2@12'	2@12'	2@12'	2@12'	2@12'	2@12'
Min. no. & width of pkg. lanes	2@ 8'	2@10'	2@ 8' ^h	1@ 8' ^a	2@ 8'	N/A	2@ 8'	2@ 8'
Minimum center line radius	955'	573'	302'	127'	198'	250'	302'	302'
Min. tangent between rev. curves	200'	200'	100'	50'	75'	100'	100'	100'
Min. center line offset (ft.) ^g	300'	300'	200'	150'	150'	150'	200'	200'
Curb return radius	35-50'	35-50'	20-35'	15-25'	15-25'	20' ^c	20-35'	20-35'
Minimum grade % ^f	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Maximum grade %	6.0%	6.0%	8.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Maximum change in grade	6.0%	8.0%	8.0%	10.0%	10.0%	10.0%	8.0%	8.0%
Design speed (minimum)	50mph	40mph	30mph	20mph	25mph	30mph	30mph	30mph
Design volume range	10000+	8000+	2500-12000	0-250ADT	> 250	N/A	0-2500	0-2500
Curb type ^e	B	B	B	B or M	B or M	N/A	B or M	B or M
Minimum sidewalk width ^d	5'	5'	Res. 3.5' Comm. 5'	3.5' ^m	3.5'	N/A	4.0'	3.5'
Median	16' min.	14' min.	Painted ⁱ	--	--	--	--	--
Maximum superelevation (ft/ft) ^k	0.06	0.04	0.04	0.04	0.04	0.08	0.04	0.04
Min. street structural sections ¹								
Subgrade compaction ^j	95	95	95	95	95	95	95	95
Untreated base (607a.04)*	8"	8"	8"	6"	6"	3"	8"	8"
Asphalt Concrete Pavement	4"	4"	3"	2"	2"	--	3"	3"
P.C. Concrete Pavement	8"	8"	6"	4"	6"	--	6"	8"
See Typical Section in Figure	VI-1	VI-2	VI-3	VI-6		VI-5	VI-4	

Notes are on following page

* See Wyoming Public Works Standard Specifications -- 1984 Edition

(1) In all locations the minimum distance from the back of curb to the right-of-way line shall be 10'.

(2) Minimum roadway width shall be measured from back of curb to back of curb.

2/01/90

NOTES TO TABLE VI-1 ON PREVIOUS PAGE

- a. Additional parking shall be provided equal to 50% of the off-street parking requirements for units served by the streets. Parallel on-street parking spaces which the street section normally accommodates cannot be used to satisfy this requirement.
- b. Rural subdivisions only. A rural subdivision is a subdivision located outside the limits of an incorporated city or town, which is subdivided into lots that are not planned or intended for annexation, and which has a density less than 3 dwelling units per acre.
- c. Radius at roadbed shoulder.
- d. Where the sidewalk also serves as a bikeway, the minimum width shall be 8'.
- e. B -- Barrier, Type A - Standard Drawing No. 503.01, Wyoming Public Works Standard Specifications, 1984 Edition.
M -- Mountable, Type B - Standard Drawing No. 503.01, Wyoming Public Works Standard Specifications.
- f. Minimum grade shall apply to gutter flowline grade.
- g. Generally, proposed streets shall be continuous and in alignment with existing, planned, or platted streets.

The offset requirements do not apply to side streets where there is a physical median on the major street which does not have openings for the side streets.
- h. On streets where an on-street bike lane is designated, there shall be 2-12' driving lanes, 2-7' parking lanes, and 2-5' bike lanes.
- i. As a minimum, approaches to major intersections should be flared to provide separate left and right turn lanes.
- j. Ninety-five percent (95%) compaction at optimum moisture to a depth of six inches.
- (k). Superelevation is not recommended for use on local street curves. All roadway designs utilizing superelevation are subject to review and approval by the reviewing engineer.
- l. See Requirements Section concerning design of pavement. Minimums do not apply when design is prepared by a qualified P.E.
- m. One side only.

(M)

Right of Way Contract

JUN 21 1963

For and in consideration of the sum of \$ Two hundred fifty (250) dollars to us in hand paid, receipt of which is hereby acknowledged, Mike Sara and Angelina Sara do hereby grant to Colorado-Wyoming Gas Company its successors and assigns, the use of a right-of-way to lay, maintain, alter, repair, operate, remove, and relay paralleled Pipe Lines for the transportation of oil and gas, and, if necessary, erect, maintain, and operate Telegraph and Telephone Lines. Said sum is acknowledged as full consideration for right-of-way, and also for damages occasioned by installing the first Line. Grantee to be responsible for damages to growing crops, occasioned by making future repairs to said line, and the laying and maintaining other lines, covering certain lands in Laramie County, State of Wyoming

described as follows, to-wit:
Approximately six hundred forty (640) rods, more or less, across the East half (E. 1/2) of Section twenty four (24), and the East half (E. 1/2) of Section thirteen (13) to the Northeast corner of Section thirteen (13), Township thirteen (13) North; Range sixty seven (67) West of the sixth (6th) P.M. Also one hundred ninety seven (197) rods, more or less, Eastward along the North line of Section thirteen (13) beginning at the Northwest corner of said Section thirteen (13); Township thirteen (13) North; Range sixth seven West of the sixth (6th) P.M.

IN WITNESS WHEREOF: The Grantor have hereunto set their hands and seal this 16th day of April, 1947
Mike Sara (SEAL)
Angelina Sara (SEAL)
By his mark
By her mark

16th day of April, 1947, before me, the undersigned a Notary Public in and for the County and State aforesaid personally appeared Mike Sara and Angelina Sara to me known to be the identical person who executed the within and foregoing instrument, and acknowledged to me that they executed the same as their free and voluntary act and deed for use and purposes therein set forth.

WITNESS MY HAND and seal this 16th day of April, 1947.
My commission expires May 1, 1950

Transferred to
Cheyenne Light, Fuel & Power Co.
See 33995
Notary Public.

16" GAS
NO SPECIFIED
WIDTH

Doc. Dept. No. 69323

463685

Doc. Dept. No. 69323

Right of Way and Damages

FROM

Photographed

Indexed

Abstracted

Mrs. Sara &
Angelina Sara

TO

Colorado Wyoming Gas Co.
The State of Wyoming
County of Laramie

This instrument was
Line at 10:38 o'clock A. M. on the
19 day of June

A. D. 1947 and duly recorded
Long Book 425 on page 126

John R. Goss
County Clerk & Ex-Officio Register of Deeds
By Dorothy Shultz Deputy

Box 377

Correct:

Approved:

John Brosius

R. O. W. Agent

Document No.

\$ 1.00 RECEIVED OF CHEYENNE LIGHT, FUEL AND POWER COMPANY
One and no/100 - - - - - DOLLARS,

in consideration of which hereby grant unto said Company, its successors and assigns, the right, privilege and authority to construct, operate and maintain its electric transmission, distribution and service lines, whether said lines now or may hereafter serve the property herein described, or other property, with all poles, cross arms, cables, wires, guys, supports, fixtures and devices, used or useful in the operation of said line, through and along a course as said line may be hereafter constructed in, through, over and across the of Sections 19 & 24 Township 13 N., Range 66 W., of the Sixth Principal Meridian in the County of Laramie, State of Wyoming, the approximate center line of which right of way is more particularly described as follows:

Beginning at a point on the North boundary of Section 19, T 13 North, Range 66 West located 2 feet East more or less of the NW corner of the NE 1/4 of said Section 19 and extending 62 feet more or less in a Southerly direction parallel to the North and South quarter section line of said Section 19, thence South 55° 25' West 6165 feet more or less to a point located 260 feet East more or less and 1930 feet North more or less of the SW corner of the SE 1/4 of Section 24, T 13 North, Range 66 West.

Hereby releasing and waiving any and all rights under and by virtue of the Homestead Laws of the State of Wyoming.

Together with the right to enter upon said premises, survey, construct, maintain, operate, control and use said lines and to remove objects interfering therewith, and the right to permit the attachment of wires of any other Company. The grantor reserve the right to cultivate, use and occupy said premises for any purpose consistent with the rights and privileges above granted and which will not interfere with or endanger any of the grantee's facilities therein or use thereof. In case of the permanent abandonment of said right of way, all right, privilege and interest herein granted shall end, cease and determine.

The work of installing said lines shall be done with care and all damage to the premises caused thereby shall be repaired at the expense of the Company.

This grant is subject to existing mineral leases covering any part of the above described land.

Witness hand and seal this day of , A. D. 19

at (Post Office Address)

WITNESSES: (Landowner) (SEAL)

(Landowner) (SEAL)

(Landowner) (SEAL)

(SEAL)

THE STATE OF WYOMING }
COUNTY OF } ss.

On this day of , 19, before me personally appeared

to me known to be the person described herein and who executed the foregoing instrument, and acknowledged that executed the same as free act and deed, including the release and waiver of the right of homestead, and said witness having been by me fully apprised of right and the effect of signing and acknowledging such instrument.

My commission (term) expires on the day of , 19

Given under my hand and seal this day of ,

19

Job Order No. Y 7000-C. Charge Job Order No. Y 7249-C.

Date.....

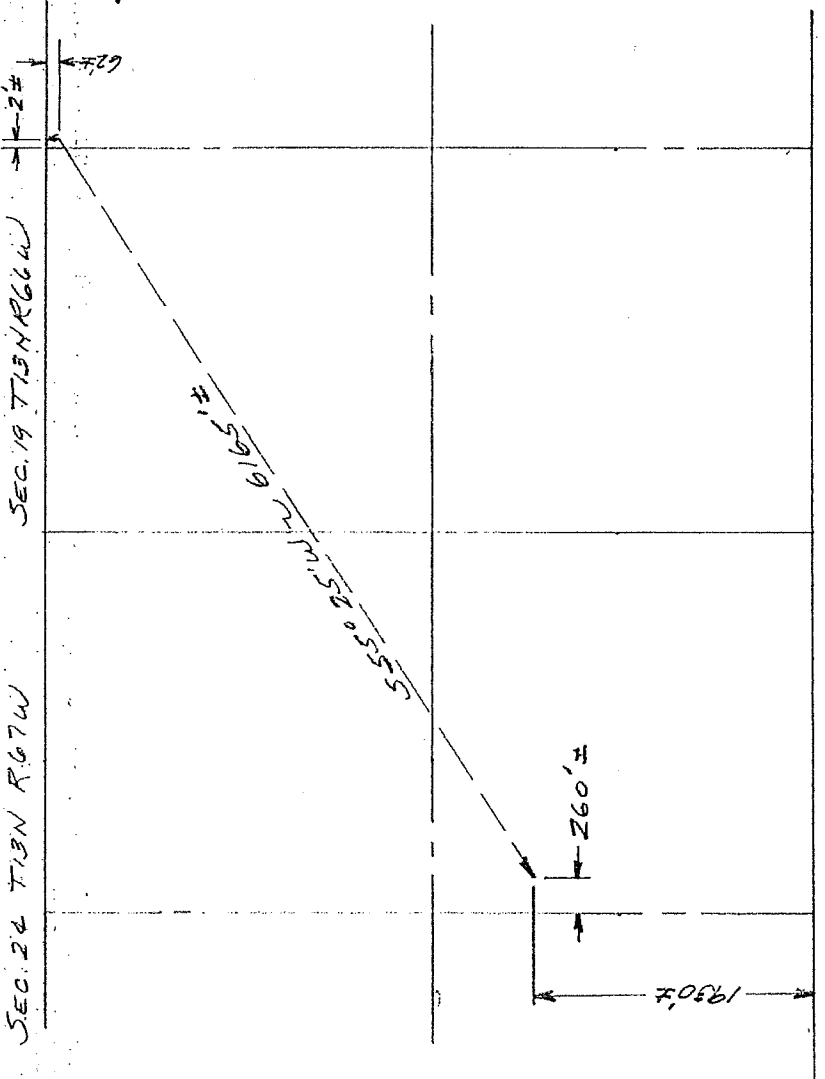
I/WE hereby acknowledge receipt of..... One and no/100 - - - - - Dollars (\$..... 1.00.....)
from..... John Brosius....., R. O. W. Agent of the Cheyenne Light, Fuel and Power Company in
consideration of the granting of the rights of way described herein.

WITNESSES:.....

(Landowner)

(Landowner)

(Landowner)



RIGHT OF WAY

From..... Mike Sara.....
Section No.s..... 19 and 24.....
Township No. 13 North.....
Range No. 66 and 67 West.....
..... Line.....
Document No.
Date....., 19.....

Mail to
CHEYENNE LIGHT, FUEL & POWER
COMPANY
Cheyenne, Wyoming

Correct:

Approved:

John Brosius

R. O. W. Agent.

Document No.

\$ 1.00
One and no/100 -- RECEIVED OF CHEYENNE LIGHT, FUEL AND POWER COMPANY

DOLLARS,

in consideration of which hereby grant unto said Company, its successors and assigns, the right, privilege and authority to construct, operate and maintain its electric transmission, distribution and service lines, whether said lines now or may hereafter serve the property herein described, or other property, with all poles, cross arms, cables, wires, guys, supports, fixtures and devices, used or useful in the operation of said line, through and along a course as said line may be hereafter constructed in, through, over and across the of Section 18
 Township 13 N, Range 66 W of the Sixth Principal Meridian in the County of Laramie
 State of Wyoming, the approximate center line of which right of way is more particularly described as follows:

Beginning at a point on the North boundary of the SE 1/4 of Section 18, Twp. 13 North, Range 66 West located two feet East of the NW corner of the SE 1/4 of Section 18, Twp. 13 North, Range 66 West and extending in a Southerly direction and parallel to the West boundary of the SE 1/4 of Section 18, Twp. 13 North, Range 66 West for a distance of 2636 feet more or less to a point on the South boundary of the SE 1/4 of said section 18, Twp. 13 North, Range 66 West.

Hereby releasing and waiving any and all rights under and by virtue of the Homestead Laws of the State of Wyoming.

Together with the right to enter upon said premises, survey, construct, maintain, operate, control and use said lines and to remove objects interfering therewith, and the right to permit the attachment of wires of any other Company. The grantor reserve the right to cultivate, use and occupy said premises for any purpose consistent with the rights and privileges above granted and which will not interfere with or endanger any of the grantee's facilities therein or use thereof. In case of the permanent abandonment of said right of way, all right, privilege and interest herein granted shall end, cease and determine.

The work of installing said lines shall be done with care and all damage to the premises caused thereby shall be repaired at the expense of the Company.

This grant is subject to existing mineral leases covering any part of the above described land.

Witness hand and seal this day of , A. D. 19

at (Post Office Address)

WITNESSES:

John Brosius

P. J. Black Lumber Co (SEAL)
 (Landowner)

By Norman P. Black (SEAL)
 (Landowner)

(SEAL)
 (Landowner)

(SEAL)

THE STATE OF WYOMING

COUNTY OF Laramie

ss.

On this 25th day of August, 1946, before me personally appeared

Norman P. Black
 known to be the person described herein and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed, including the release and waiver of the right of homestead, and said witness having been by me fully apprised of right and the effect of signing and acknowledging such instrument.

My commission (term) expires on the 1st day of June, 1948

Given under my hand and seal this 5 day of August, 1946

Fred H. Douglas Jr

Extension to Sara Dairy - Job Order Y 7000-C, Charge J. O. 7249-C.

Date.....

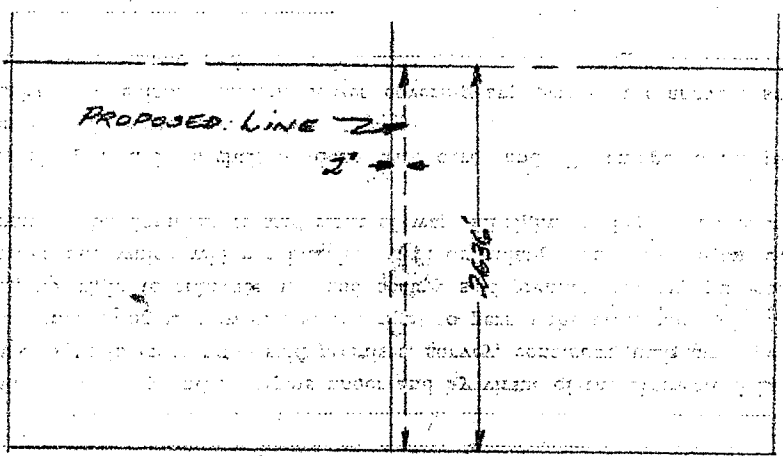
I/W/E hereby acknowledge receipt of One and no/100 0-0 Dollars (\$1.00)

from John Brosius, R. O. W. Agent of the Cheyenne Light, Fuel and Power Company in consideration of the granting of the rights of way described herein.

WITNESSES: John Brosius P. J. Black Lumber Co
(Landowner) (Landowner)
By Norman P. Black
(Landowner)



SEC. 18, T. 13 N., R. 66 W.



RIGHT OF WAY

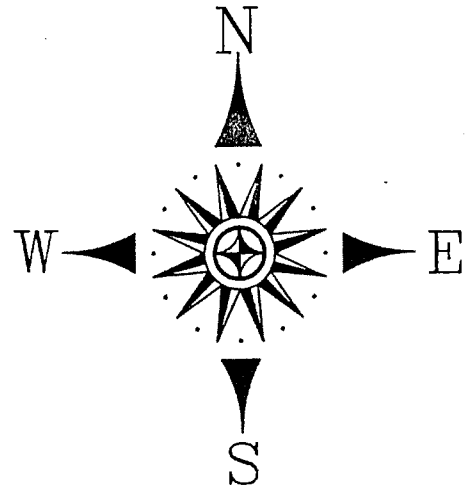
From 18
Section No. 13 North
Township No. 66 West
Range No. 19
Document No. 19
Date

Mail to
**CHEYENNE LIGHT, FUEL & POWER
COMPANY**
Cheyenne, Wyoming

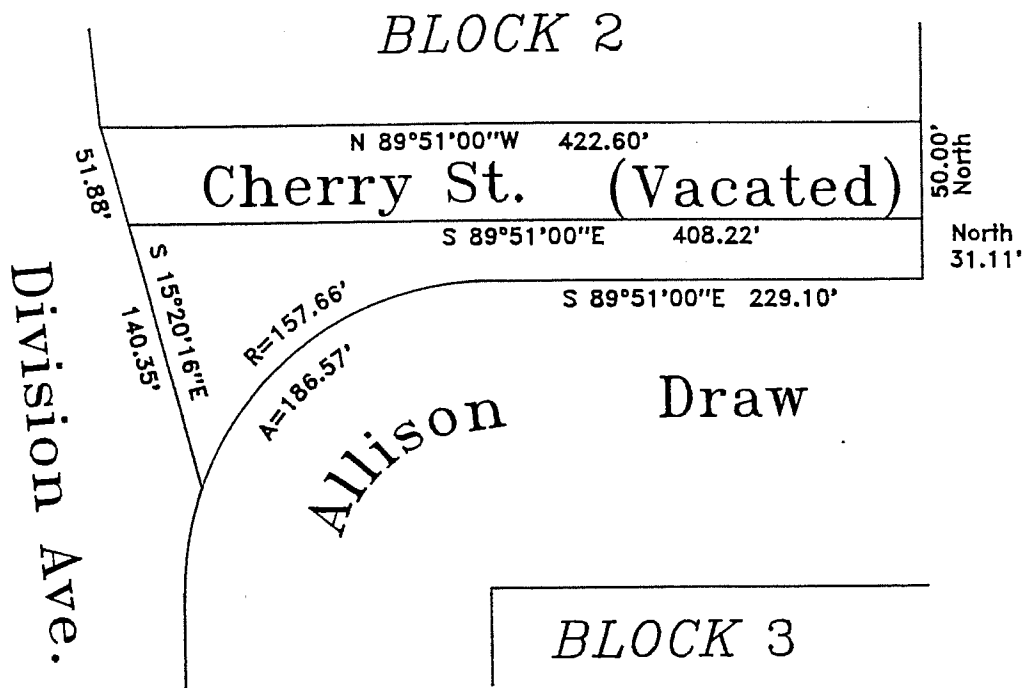
PIONEER PRINTING CO. CHEYENNE, WYO.

NOTICE:

This Map and the Description as shown hereon was NOT made from an actual Survey but were prepared from plats of Subdivisions and record of Surveys as recorded in various Governmental offices. These documents do Not constitute or imply that an actual field Survey was performed. These documents do depict those data as recorded and of record.



Country Homes Sub.



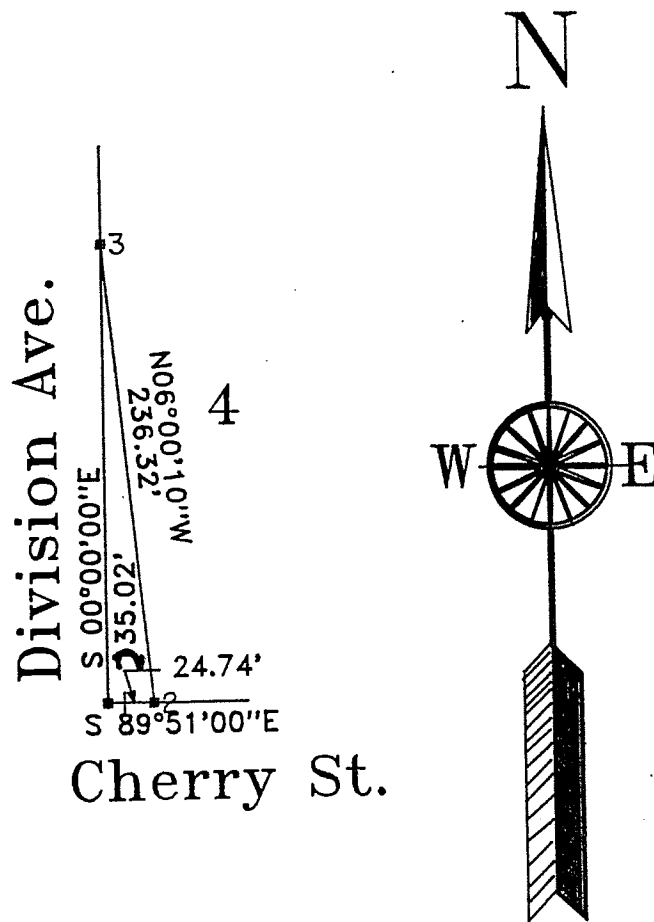
AREAS:

Cherry Street Vacated: 20787 Sq Ft +/-

Lands between Cherry St.

Allison Draw & Division Ave; 18249 sq ft +/-

Total Area: 39036 sq ft +/-

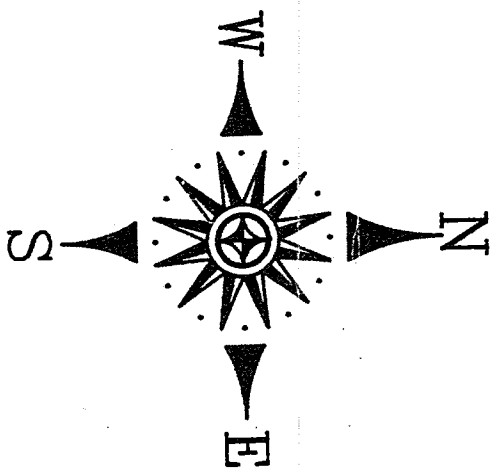


Block 2

Country Homes Sub.

NOTICE:

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W. COLLEGE DRIVE

Orchard Valley

Country Homes Subdivision

Milatzo Subdivision

See Details
on Page 2

30' R/W

Cherry St. 50 ft. R/W

Grape St. 50 ft. R/W

Citrus St. 60 ft. R/W

80' R/W

Division Ave.

Angle St. 60 ft. R/W

1/4



Page 1

Orrrard Valley

1st

BLOCK ONE

10

9

8

12

11

113.00'

113.00'

113.00'

113.00'

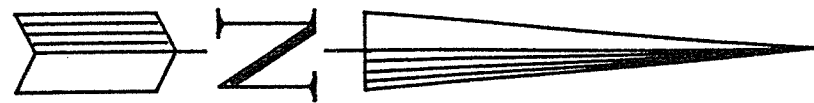
113.00'

Fence Encroachment on Division Ave.

2.4 feet encroachment

Division Ave.

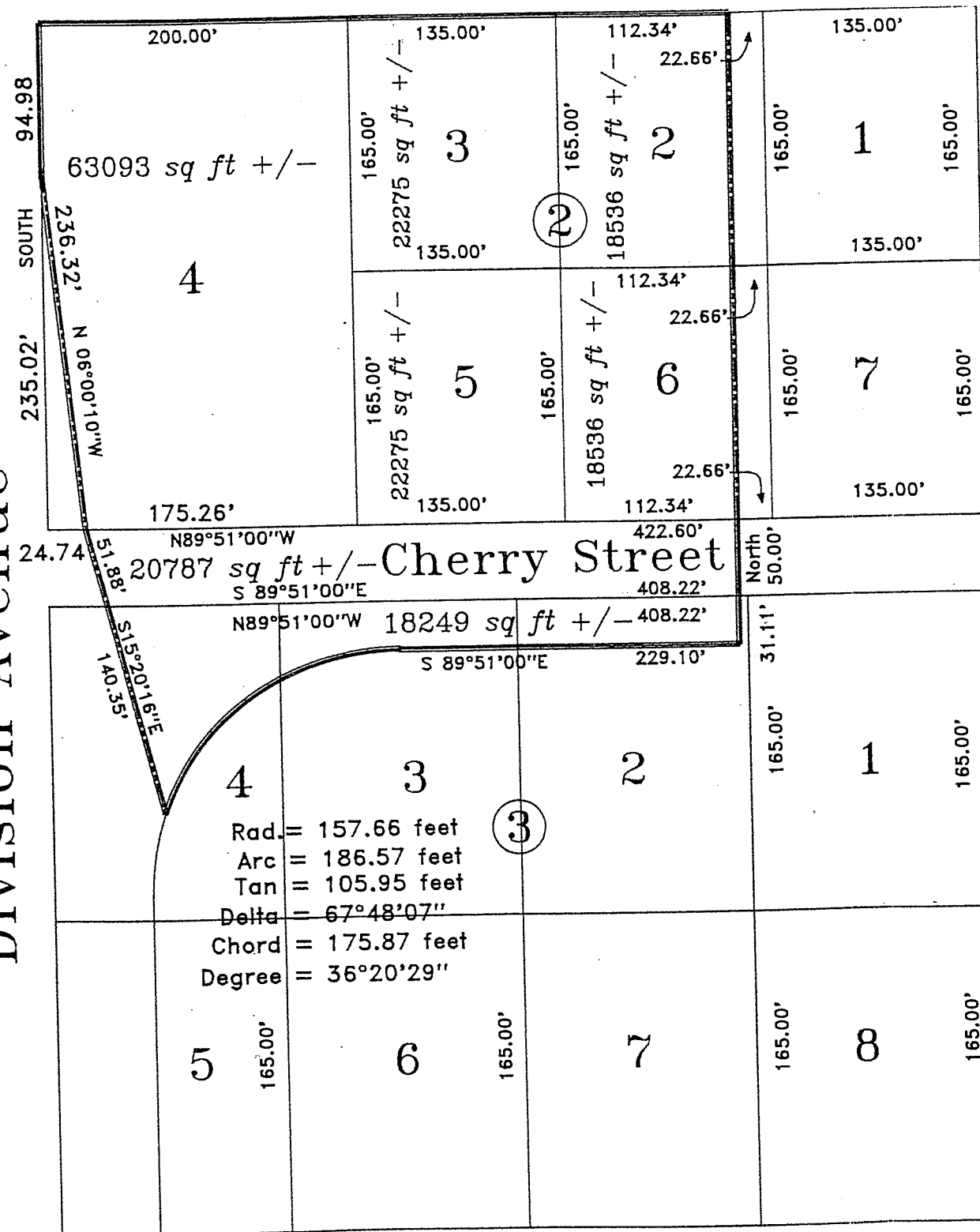
12.5ft 0 25 ft 50 ft
SCALE 1" = 25 feet



Country Homes Subdivision

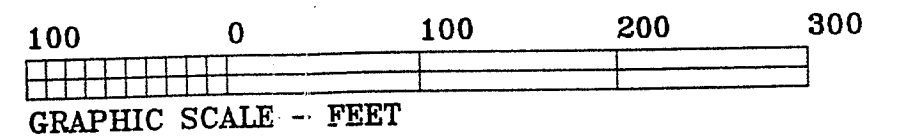
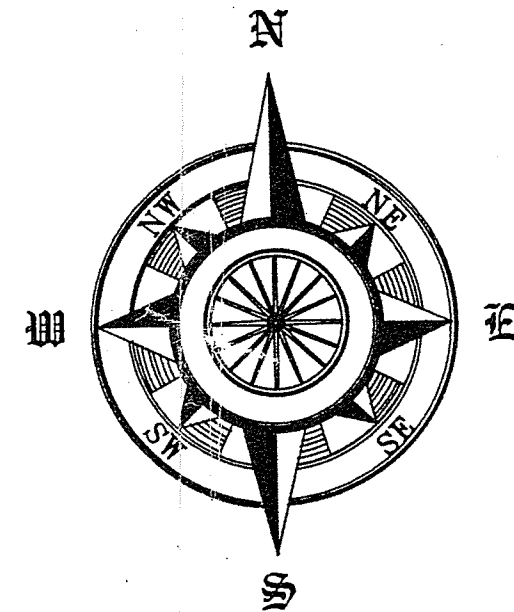
West College Drive

Division Avenue



NOTICE:

This Map and the Description as shown hereon was NOT made from an actual Survey but were prepared from plats of Subdivisions and record of Surveys as recorded in various Governmental offices. These documents do Not constitute or imply that an actual field Survey was performed. These documents do depict those data as recorded and of record.



Country Homes Subdivision Block 2 and Block 3

DIVISION Cheyenne Light Fuel and Power TOWN Cheyenne
NAME OF LINE OR EXTENSION 6" I.P.
METHOD OF PAYMENT check
W.O.-J.O. NO 601374

FORM (D) 921-10-2288

Correct:

Joan Schroeder

R.O.W. Agent

Approved:

George F. Escobedo

RETAIN PERMANENTLY

Plat No. 591-158

Document No. 163585

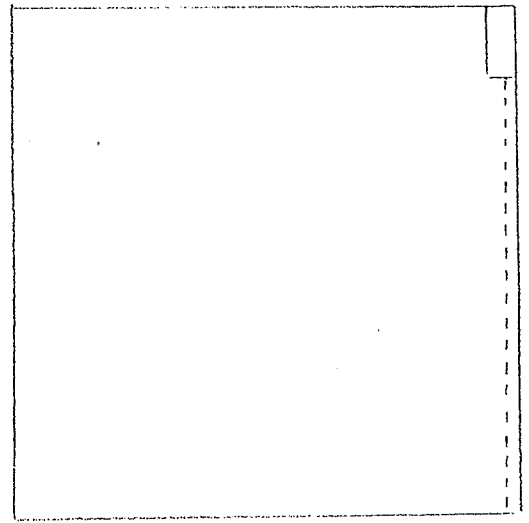
UTILITY EASEMENT

The undersigned Grantor hereby acknowledges receipt of \$ 5998.30 from CHEYENNE LIGHT, FUEL AND POWER COMPANY in consideration of which he hereby grants unto said Company, its successors and assigns, an easement to construct, operate and maintain utility lines and all fixtures and devices, used or useful in the operation of said lines, through, over, under, across and along a course as said lines may be hereafter constructed in Lot Block Subdivison

in the NE 1/4 of Section 13, Township 13 N, Range 67 W, of the 6th Principal Meridian in the City of Laramie, County of Laramie, State of Wyoming, the center line of the easement is described as follows:

Beginning at the East 1/4 corner of said Section 13 thence west a distance of eight (8) feet to a true point of beginning; thence N 0° 05' 36" E, a distance of 2255 feet.

LARAMIE COUNTY CLERK
CHEYENNE, WY.
JUN 2 AM 11 32
226236



645

This is not a monumented survey. It is intended only to depict the attached description.

The easement is 16 feet in width. The side boundary lines of the easement shall be lengthened and shortened as necessary to encompass a continuous strip of not less than the above width at all points on Grantor's property crossed by the above described easement and extending to the boundaries of the adjacent properties.

Together with the right to enter upon said premises, to survey, construct, maintain, operate, repair, replace, control and use said utility lines and related fixtures and devices, and to remove objects interfering therewith, including the trimming of trees and bushes, and together with the right to use so much of the adjoining premises of Grantor during surveying, construction, maintenance, repair, removal, or replacement of said utility lines and related fixtures and devices as may be required to permit the operation of standard utility construction or repair machinery. The Grantor shall be responsible for disposal, in accordance with federal and state law(s) and local ordinances, of any soil and debris excavated from the property that is contaminated with hazardous substances, wastes, petroleum, etc. The Grantor reserves the right to use and occupy the easement for any purpose consistent with the rights and privileges above granted and which will not interfere with or endanger any of the said Company's facilities therein or use thereof. Such reservations by the Grantor shall in no event include the right to erect or cause to be erected any buildings or structures upon the easement granted or to locate any mobile home or trailer units thereon. In case of the permanent abandonment of the easement all right, privilege and interest granted shall terminate.

The work of installing and maintaining said lines and fixtures shall be done with care; the surface along the easement shall be restored substantially to its original level and condition.

"Grantor" shall include the singular, plural, feminine, masculine, and neuter.

Signed this 21st day of May, 19 98.

WITNESSES: [Signature]

GRANTOR: [Signature]

Dominic Sara [Signature]

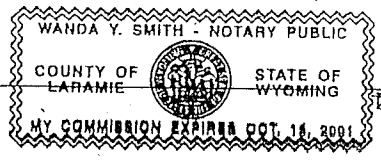
Louise J. Sara [Signature]

State of Wyoming)
County of Laramie) SS

The foregoing instrument was acknowledged before me by Dominic Sara and Louise J. Sara

this 21st day of May, 19 98. Witness my hand and official seal.

My Commission Expires:



Wanda Y. Smith
Notary Public

BOOK 1484

0017

420

RECORDED APR 28 1947 AT 2 30 O'CLOCK P.M.

BOOK 436

WARRANTY DEED—S

Form

461037

Printed and fi

le by Pioneer Printing Co.

RECEPTION NO.

LESTER K. GUPP, Recorder

MICHAEL SARA and ANGELINA SARA, husband and wife, of Laramie County,
State of Wyoming,

grantor S

for and in consideration of One Hundred and 00/100---(\$100.00)--- Dollars

in hand paid, convey and warrant to Colorado-Wyoming Gas Company, a corporation

grantee

the following described real estate, situated in the County of Laramie, State of Wyoming,

to-wit: That portion of the Northeast quarter of Section Thirteen, Township
Thirteen North, Range Sixty-seven West of the Sixth Principal Meridian,
bounded as follows: Beginning at a point at the Northeast corner of
said Section Thirteen running thence West along the North line of said
Section Thirteen, a distance of One Hundred Twenty-five feet (125 ft.),
thence south at right angles to said North line of Section Thirteen, a
distance of Three Hundred Fifty feet (350 ft.), thence east and parallel
to said North line of Section Thirteen, a distance of One hundred Twenty-
five feet (125 ft.), thence north and at right angles to said North line
of Section Thirteen, a distance of Three Hundred Fifty feet (350 ft.) to
point of beginning, excepting from such plot of ground any land now
occupied by State Highway or County Road.

And the said grantors

hereby covenant with

the said grantee

that they are

lawfully seized of said premises; that they are free from encumbrances, and they do warrant the
title thereto against the lawful claims of all persons whomsoever, ~~and~~



Hereby releasing and waiving any and all rights under and by virtue of the Homestead Exemption Laws of this State.

Dated this, the 26 day of April, A. D. 1947

Signed, Sealed and Delivered in Presence of

Michael Sara [SEAL]
his mark

Albert H. Watters

Angelina Sara [SEAL]
her mark

Witness to mark of Michael Sara and
to mark of Angelina Sara:

Chas. E. O'Leary

Doc. #1964

Reb STATION

RAMIE COUNTY ROAD INDEX

PRIMARY ROAD NAME/NUMBER	SECONDARY ROAD NAME/NUMBER	ROAD SEG	MAP PAGE	SUBDIVISION	CITY	ROW WIDTH	BEG ML	END ML	LENGTH	STATUS	MAINT?	COND	NOTES
SHOOTING STAR TRL			B-3	THE RANCH EAST		80	0.00	0.00	0.50	COUNTY	True	G	NO PLAT. ESTABLISHED 10/19/93. ROAD PETITION 325
SILKY SULLIVAN ST			D-80	COUNTRYSIDE ADDITION		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
SILVER SPUR RD			D-34,35	COWBOY COUNTRY		60	0.00	0.00	0.68	COUNTY	True	G	ACCEPTED 11-3-76, 5-16-77, 8-10-78. ESTABLISHED 05/20/97
SIoux DR		CHEROKEE TO PRAIRIE HILLS	D-47	NORTH CHEYENNE	CHEYENNE	60	0.00	0.00	0.16	COUNTY	True	P	PORTION VACATED
SITTING BULL RD			D-8	WYOMING RANCHETTES		80	0.00	0.00	1.00	COUNTY	True	G	ACCEPTED 1988. ESTABLISHED 05/20/97
SKYLINE DR			D-51	CRESTMoor WEST		80	0.00	0.00	0.00	VACATED	False		NOT BUILT
SKYLINE DR			D-52	ANTELOPE HILLS		80	0.00	0.00	0.26	COUNTY	True	G	ACCEPTED 8-31-78. ESTABLISHED 05/20/97
SKYLINE DR		MARSHALL TO SYCAMORE	D-48	SKYLINE TRACTS		60	0.00	0.00	0.24	COUNTY	True	G	ESTABLISHED 05/20/97
SKYLINE DR		SYCAMORE TO BRIMMER	D-48	SKYLINE TRACTS		60	0.00	0.00	0.00	PUBLIC	False		NOT BUILT
SKYWAY AVE			H-1	SKYVIEW ESTATES 1ST		80	0.00	0.00	0.15	COUNTY	True	G	ACCEPTED 07/02/92. ESTABLISHED 05/20/97
SKYWAY AVE			H-1	SKYVIEW ESTATES 1ST		80	0.00	0.00	0.20	PUBLIC	False	G	ESTABLISHED 05/20/97
SLAUGHTERHOUSE RD			C	TERRY BISON RANCH			0.00	0.00	0.00	PRIVATE	False		
SMOKING OAK RD			D-16	BRIARWOOD RANCHETTES		80	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
SOUTH FORK RD			D-147	SOUTH FORK 2ND FILING		60	0.00	0.00	0.00	PUBLIC	False	P	MOBILE HOME PARK
SOUTH PASS TRL			D-147	SOUTH FORK 5TH FILING		60	0.00	0.00	0.00	PUBLIC	False	P	MOBILE HOME PARK
SOUTH RD			E-5	HAPPY VALLEY #2			0.00	0.00	0.00	VACATED	False		
SOUTH RD			B-1	HILLSDALES. RANCHETTES		60	0.00	0.00	0.00	PUBLIC	False		NO ACCEPTANCE ON FILE
SOUTH ST			J-1		FEDERAL		0.00	0.00	0.00	PUBLIC	False		
SOUTHWEST DR	ROAD 123		D-117,131			N.S.	206.80	207.80	1.28	1.10	COUNTY	True	P
SPACE DR			D-49	LUNAR VIEW ESTATES		60	0.00	0.00	0.74	COUNTY	True	G	ESTABLISHED 05/20/97
SPEEDWAY DR			D-147,161	CATHCART		80	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
SPEER RD			D-156				0.00	0.00	0.00	PRIVATE	True	G	PRIVATE
SPIKER RD			D-37	SPIKER		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
SPRING BEAUTY TRL			B-3,4	THE RANCH EAST		80	0.00	0.00	2.45	COUNTY	True	G	NO PLAT. ESTABLISHED 10/19/93. ROAD PETITION 325
SPRING CREEK RD			J-7	SPRING CREEK RANCH		80	0.00	0.00	1.10	COUNTY	True	G	MAINTENANCE 2-20-87. ESTABLISHED 05/20/97
SPRING VALLEY DR			F-1	ARROWHEAD ESTATES		80	0.00	0.00	0.00	PUBLIC	False	G	NO PUBLIC MAINTENANCE
SPRINGTIME DR			H-12	THE SEASONS ESTATES		80	0.00	0.00	0.55	COUNTY	True	G	ACCEPTED AND ESTABLISHED 11/05/96
ST. JAMES RD			E-2,3	HAPPY VALLEY #2		60	0.00	0.00	0.00	PUBLIC	False	G	NO PUBLIC MAINTENANCE
STABLE DR			J-7	SPRING CREEK RANCH		80	0.00	0.00	0.15	COUNTY	True	G	MAINTAINED 2-20-87. ESTABLISHED 05/20/97

LARAMIE COUNTY ROAD INDEX

PRIMARY ROAD NAME/NUMBER	SECONDARY ROAD NAME/NUMBER	ROAD SEG	MAP PAGE	SUBDIVISION	CITY	ROW WIDTH	BEG ML	END ML	LENGTH	STATUS	MAINT?	COND	NOTES
ARTHUR AVE			D-80	SUNNYSIDE ADDITION		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE; PORTION VACATED
ARTHUR AVE			D-51	CRESTMOR		80	0.00	0.00	0.25	COUNTY	True	G	ESTABLISHED 02/03/98; ROAD PETITION 376
ASHFORD CT			D-174	WINCHESTER HILLS 1ST		80	0.00	0.00	0.00	PUBLIC	False	P	HOA MAINTAINS. SNOW REMOVAL ONLY
ASHFORD DR			D-174	WINCHESTER HILLS 1ST		80	0.00	0.00	0.00	PUBLIC	False	P	HOA MAINTAINS. SNOW REMOVAL ONLY.
ASPEN CIR			D-52	BLUE RIDGE		80	0.00	0.00	0.10	COUNTY	True	G	ESTABLISHED 05/20/97
ASPEN DR			J-5	GRANITE SPRINGS RETREAT		60	0.00	0.00	0.00	PUBLIC	False	G	NO PUBLIC MAINTENANCE.
ASSINIBONE AVE			D-147	BIG COUNTRY ESTATES			0.00	0.00	0.00	PRIVATE	False	P	MOBILE HOME PARK
ASTRONAUT DR		TRANQUILITY TO COLUMBIA	D-49	LUNAR VIEW;MONTCLAIR		80	0.00	0.00	0.05	COUNTY	True	G	ESTABLISHED 05/20/97
ASTRONAUT DR		SOUTH OF TRANQUILITY	D-49	LUNAR VIEW;MONTCLAIR		40	0.00	0.00	0.00	PUBLIC	False	G	PORTIONS VACATED; RP-355, ET AL
ATKIN ST			D-93	McCANN HOMESITES	CHEYENNE	30	0.00	0.00	0.00	PUBLIC	False	G	60' TOTAL R/W.
AUTUMNSET DR			H-12	THE SEASONS ESTATES		80	0.00	0.00	0.74	COUNTY	True	G	ACCEPTED AND ESTABLISHED 11/05/96
AVENUE B			D-174,175	HYNDMAN HOMESITES		80	0.00	0.00	2\ 0.02	COUNTY	True	G	ESTABLISHED 05/20/97 477
AVENUE B-2			D-147	WALLICK & MURRAY TR.		60	0.00	0.00	0.37	PUBLIC	False		NOT BUILT
AVENUE B-2			D-175	HYNDMAN HOMESITES		80	0.00	0.00	✓ 0.25	COUNTY	True	G	ESTABLISHED 05/20/97 479
AVENUE B-2			D-147	SOUTH FORK		60	0.00	0.00	0.31	PUBLIC	False	P	MOBILE HOME PARK
AVENUE B-3			D-105C	SOUTH HILL PARK		30	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
AVENUE B-4		HYNDMAN TO PEARL	D-175	HYNDMAN HOMESITES		40	0.00	0.00	3\ 0.07	COUNTY	True	G	ESTABLISHED 05/20/97 480
AVENUE B-4		TERRY RANCH TO PEARL	D-175	HYNDMAN HOMESITES		40	0.00	0.00	0.00	PUBLIC	False		NOT BUILT
AVENUE B-4			D-105	HIGHLAND PARK		30	0.00	0.00	✓ 0.12	COUNTY	True	G	ESTABLISHED 05/20/97
N AVENUE B-4			D-119	ALLISON TRACTS			0.00	0.00	0.00	PRIVATE	False	G	ADDRESSES HAVE BEEN ISSUED ON THIS ROAD
AVENUE B-5			D-105	HIGHLAND PARK		80	125.50	125.80	✓ 0.12	COUNTY	True	G	ESTABLISHED
N AVENUE B-6	ROAD 208A		D-133B	WALLICK & MURRAY GAR.		60	0.00	0.00	→ 0.50	COUNTY	True	P	ESTABLISHED 04/02/96 ←
S AVENUE B-6		COLLEGE TO ARTESIAN	D-119	SOUTHERN HEIGHTS;DUNLAP		30	0.00	0.00	2\ 0.24	COUNTY	True	G	ESTABLISHED 05/20/97 427
S AVENUE B-6			D-119	RICHARDSON TRACTS		25	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
S AVENUE B-6			D-133D	ARTESIAN TRACTS		60	0.00	0.00	→ 0.25	COUNTY	True	G	ESTABLISHED 05/20/97 ← 423
S AVENUE B-6		ARTESIAN TO NATION	D-133D	ARTESIAN TRACTS		60	0.00	0.00	→ 0.00	PUBLIC	False	T	NOT BUILT Established 5-1-01
S AVENUE B-6		NATION TO WALLICK	D-133D	ARTESIAN TRACTS		60	0.00	0.00	→ 0.00	PUBLIC	False	T	NOT BUILT Established 5-1-01
AVENUE C	ROAD 126		D-133A	WALLICK & MURRAY GAR.		80	0.00	0.00	1.26\ 0.25	COUNTY	True	P	ESTABLISHED 04/02/96
AVENUE C		SOUTH OF MURRAY	D-133A			80	0.00	0.00	0.16	PUBLIC	False		NOT BUILT
AVENUE C	ROAD 126		D-119,120			80	207.00	208.00	0.98	COUNTY	True	P	ESTABLISHED

LARAMIE COUNTY ROAD INDEX

PRIMARY ROAD NAME/NUMBER	SECONDARY ROAD NAME/NUMBER	ROAD SEG	MAP PAGE	SUBDIVISION	CITY	ROW WIDTH	BEG ML	END ML	LENGTH	STATUS	MAINT?	COND	NOTES
DIAGONAL RD			E-5	HAPPY VALLEY #2		60	0.00	0.00	0.00	VACATED	False	G	
DICK AVE			D-20	SUBURBAN HEIGHTS		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
DILDINE RD			D-80	SUNNYSIDE ADDITION 7TH		60	0.00	0.00	0.11	PRIVATE	False	G	ROAD RESERVATION?
DITTMAN CT			D-62	DITTMAN		60	0.00	0.00	0.00	PUBLIC	False	G	NOT BUILT
DIVISION AVE		W WALICK TO SOUTH FORK RD D-147		WALICK & MURRAY TRACTS		40	0.00	0.00	0.37	PUBLIC	False		NOT BUILT
DIVISION AVE			D-133B	MILATZO		80	0.00	0.00	0.33? 0.21	COUNTY	True	G	ACCEPTED 2-22-79. ESTABLISHED 05/20/97 457
DIVISION AVE			D-133B	COUNTRY HOMES		30	0.00	0.00	0.21	PUBLIC	False		NO ACCEPTANCE ON FILE. NOT BUILT
DIVISION AVE			D-147	SOUTH FORK		40	0.00	0.00	0.31	PUBLIC	False	P	MOBILE HOME PARK
DOC HOLLIDAY LOOP			D-3	HORSE CREEK RANCH		80	0.00	0.00	0.60	COUNTY	True	G	ESTABLISHED 05/04/99
DODGE RD			I-11	NORTH COUNTRY		80	0.00	0.00	0.65	COUNTY	True	G	ACCEPTED AND ESTABLISHED 02/04/97
E DONA ST			D-20	FRANCIS HOMESITES		80	0.00	0.00	0.25	COUNTY	True	G	ACCEPTED 12-20-76. ESTABLISHED 05/20/97. 467
E DONA ST			D-20	MT. VIEW MEM PARK, SUBURBAN		44	0.00	0.00	0.00	PUBLIC	False	G	NOT BUILT
W DONA ST			D-16	BRIARWOOD RANCHETTES		80	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
DONALD DR			D-19	MURRAY HILL ESTATES		80	0.00	0.00	0.38 0.37	COUNTY	True	G	ESTABLISHED 05/20/97 487
DORSEY RD			D-53	BISON RUN 2ND FILING		80	0.00	0.00	0.62	COUNTY	True	G	ESTABLISHED 11/16/99
DOT RAY PL			D-119C	DOROTHY "G"		60	0.00	0.00	0.00	PUBLIC	False	G	NOT ACCEPTED
DRAPER RD			D-132	SANCHEZ, SHOCKLEY		50	0.00	0.00	0.25 0.24	COUNTY	True	G	ESTABLISHED 05/20/97 IN SANCHEZ 448
DRAW DR			I-3	NORTHLAND RANCHETTES		80	0.00	0.00	0.30	COUNTY	True	G	ACCEPTED 7-24-78. ESTABLISHED 05/20/97
DREW CT			D-119D	DREW		60	0.00	0.00	0.10	COUNTY	True	G	ESTABLISHED 05/20/97
DREW CT			D-120C	CLARA		60	0.00	0.00	0.10	COUNTY	True	G	ESTABLISHED 05/20/97 433
DRUMMOND AVE			D-50	NORTH RIDGE		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
DUBOIS RD			H-3	CONWAY HILLS		60	0.00	0.00	0.30	COUNTY	True	G	ESTABLISHED 05/20/97
DUESENBERG RD			I-7	RANCH NORTH, THE		80	0.00	0.00	0.30	COUNTY	True	G	ACCEPTED 11/23/94. ESTABLISHED 05/20/97
DUNLAP LN			D-119A	DUNLAP ESTATES		25	0.00	0.00	0.00	PRIVATE	False	G	PLATTED, NOT DEDICATED
DUSTY RD			E-2	HAPPY JACK RANCHETTES		30	0.00	0.00	0.00	PRIVATE	False		NOT PLATTED. ACCESS EASEMENT
DUTCH CT			D-37	BUCKLES		80	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
EAGLE DR			D-49	LUNAR VIEW, MONTCLAIR		80	0.00	0.00	0.80	COUNTY	True	G	ESTABLISHED 05/20/97
EAST RD			B-1	HILLSDALES. RANCHETTES		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
EDGEMONT LN			F-6	HARRIMAN HEIGHTS		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE

LARAMIE COUNTY ROAD INDEX

PRIMARY ROAD NAME/NUMBER	SECONDARY ROAD NAME/NUMBER	ROAD SEG	MAP PAGE	SUBDIVISION	CITY	ROW WIDTH	BEG ML	END ML	LENGTH	STATUS	MAINT?	COND	NOTES
VENUS AVE			D-133C	GALAXY ESTATES			0.00	0.00	0.00	PRIVATE	False		MOBILE HOME PARK
VERA LN			D-68	CHRISTENSEN TRACTS		80	0.00	0.00	0.36	COUNTY	True	G	ACCEPTED 11-12-91. ESTABLISHED 05/20/97
VERMONT RD			E-2	HAPPY VALLEY #1		60	0.00	0.00	0.00	PUBLIC	False	G	NO PUBLIC MAINTENANCE
VERMONT RD			E-2	HAPPY JACK RANCHETTES		60	0.00	0.00	0.00	PRIVATE	False		NOT PLATTED. ACCESS EASEMENT
VICTORIA DR			D-65C	GOULD, SEAVER'S		60	0.00	0.00	0.36	COUNTY	True	G	ESTABLISHED 05/20/97
VIRGINIA RD			E-4	HAPPY VALLEY #2		60	0.00	0.00	0.00	PUBLIC	False	G	NO PUBLIC MAINTENANCE
WAGON BOX RD			H-14	PRAIRIE WINDS SUB		80	0.00	0.00	0.34	COUNTY	True	G	ACCEPTED AND ESTABLISHED 12/02/97
WAGON RD			D-131	SOUTHCREST HEIGHTS		40	0.00	0.00	0.00	PUBLIC	False	G	NOT ACCEPTED 5-24-79
WAGON TRAIL DR			F-3	PINE GROVE ESTATES		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
WALKER LN			D-133C	TERRY HOMESITES		25	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
WALKING Y DR			D-131	SOUTHCREST HEIGHTS		40	0.00	0.00	0.00	PUBLIC	False	G	NOT ACCEPTED 5-24-79
E WALLICK RD			D-147	ADRAGNA, ARTESIAN		60	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
W WALLICK RD		SOUTH GREELEY TO AVE. B-2	D-133C	AFFLERBACH, WALLICK		80	0.00	0.00	0.23	COUNTY	True	P	ESTABLISHED 05/20/97
W WALLICK RD		WEST OF AVE. B-2	D-147	M & B		40	0.00	0.00	0.00	PUBLIC	False		NOT BUILT
WALTERSCHEID BLVD	ROAD 125		D			80	207.00	208.00	0.96 1.00	PUBLIC	True	P	
WAPITI TRL			D-161	BISON CROSSING 1ST		80	0.00	0.00	0.50	COUNTY	True	G	ACCEPTED AND ESTABLISHED 02/02/99. BOND SET FOR PAVEMENT.
WAR ADMIRAL RD			H-20	TRIPLE CROWN ESTATES 01		80	0.00	0.00	0.60	COUNTY	True	G	ESTABLISHED 02/15/00
WARREN ST			G-4		EGBERT	80	0.00	0.00	0.00	PUBLIC	False		
WARRIOR AVE			D-147	BIG COUNTRY ESTATES		40	0.00	0.00	0.00	PRIVATE	False		MOBILE HOME PARK
WATER LINE RD			E-2	HAPPY JACK RANCHETTES		60	0.00	0.00	0.00	PRIVATE	False		NOT PLATTED. ACCESS EASEMENT.
WATER PLANT RD			D-44				0.00	0.00	0.00	PRIVATE	False	G	CITY OWNED
WAYNE RD			D-21	WINDGATE ACRES		60	0.00	0.00	0.25	COUNTY	True	G	ESTABLISHED 05/20/97
WAYNE RD			D-21	B&B ESTATES, WIND DANCER		70	0.00	0.00	0.25	COUNTY	True	G	ESTABLISHED 05/20/97
WAYNE RD		NORTH OF MORIAH	D-21				0.00	0.00	0.00	PRIVATE	False	G	NOT PLATTED
WAYSIDE CT			D-51	LOADER		80	0.00	0.00	0.00	PUBLIC	False	G	NO ACCEPTANCE ON FILE
WAYSIDE DR			D-52	ANTELOPE HILLS		80	0.00	0.00	0.00	PUBLIC	False	G	ACCEPTED 8-31-78
WEATHERBY DR			D-160	WINCHESTER HILLS 3RD		80	0.00	0.00	0.44	COUNTY	True	G	ACCEPTED 08/12/94. ESTABLISHED 05/20/97
WEATHERBY DR			D-160,161	BISON CROSSING 1ST		80	0.00	0.00	0.17	COUNTY	True	G	ACCEPTED AND ESTABLISHED 02/02/99
WEATHERBY DR			D-161	BISON CROSSING 2ND FILING		80	0.00	0.00	0.33	COUNTY	True	G	ESTABLISHED 09/05/00

CHAPTER 2

SOUTH WEST DRIVE / PARSLEY CONNECTOR

SOUTH CHEYENNE CORRIDOR STUDY

**CHEYENNE METROPOLITAN PLANNING
ORGANIZATION
Cheyenne, Wyoming**

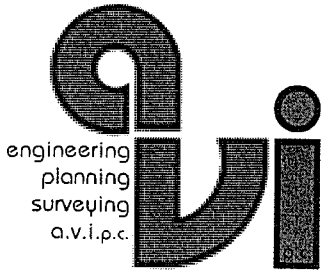
Prepared by:

A.V.I. PROFESSIONAL CORPORATION

In Association with:

**TransPlan Associates, Inc.
Boulder, Colorado**

May 2003



(307) 637-6017
fax no. (307) 632-9326
2035 westland rd.

May 21, 2003

2-2380.03

Tom Mason
Shawn Reese
Cheyenne Metropolitan Planning Organization
City of Cheyenne
2101 O'Neil Avenue
Cheyenne, Wyoming 82001

RE: SOUTH CHEYENNE CORRIDOR STUDY

Dear Tom & Shawn:

AVI has completed our evaluation, findings, and recommendation for the above project and respectfully submits the attached report for your review. The report also contains our supplemental review of the connection from Southwest Drive to Parsley Boulevard.

If you have any questions, or would like to discuss these items, please contact our office.

Sincerely,

A.V.I. PROFESSIONAL CORPORATION

Bruce H. Perryman, P.E.
President

BHP/jst

cheyenne, wyoming
82001

Southwest Drive & Parsley Boulevard Connection: **Supplemental Study**

Introduction:

This portion of the report will be issued as a supplement to the main report as its priority at the time of this writing was requested before the original project report.

The just of the supplemental study was to evaluate the feasibility of a connector street between Parsley Boulevard and Southwest Drive, north of College Drive and south of Lincolnway. Presently, access to this area is provided by three routes into and out of the area of which two involve at grade railroad crossings. Refer to Figure No. 1 for reference of the project study area. One crossing is located just south of Lincolnway involving the Union Pacific, (UP) main line. This crossing is very deficient in traffic stacking area when the crossing is closed due to train traffic. This crossing is controlled with flashing lights and descending cross bars. Delays at this location caused by train traffic average 15 minutes and can frequently extend to 30 minutes periods. This crossing involves 4 sets of tracks.

The other crossing is located on newly constructed College Drive approximately one mile east of I-25/College Drive interchange. This crossing is located on the Burlington Northern Santa Fe Railroad, (BNSF). This particular crossing is located within the BNSF Front Range Suvdivision, line segment No. 476 from mile post 116.5 to 117.6.

The third route into the study area, which does not involve an at grade railroad crossing, would be the route off of I-25 on to College Drive to Southwest Drive. Although, it doesn't involve a railroad crossing, congestion of semi tractor trailer traffic at the I-25\ College Drive interchange can cause significant delays and is a cumbersome route for emergency response vehicles should other direct routes be closed due to train activities.

Current Railroad Operational Conditions:

Due to national security issues derived from event which occurred on 9-11, F.E. Warren AFB has instituted security policies which prohibit any over night train staggging through the AFB and within the existing BNSF staging area located northerly of 24th Street. All trains allowed to pass through the base during daylight hours are now required to be searched and inspected. These operational restraints are forcing the BNSF to stage trains on the track overnight from 24th Street south to the College Drive crossing. Typical train lengths are one and one-half mile long and commonly two trains are staged end to end on the existing track segment. This eliminates any opportunity for an at grade crossing between College Drive and Lincolnway. BNSF contacts, name and number of those contacted with BNSF railroad along with a Right-of-Way application and conditions are provided in Appendix A.

Connection Route Location:

The area evaluated for a neighborhood connection between Parsley Boulevard and Southwest Drive is located southerly of I-80 about midway to College Drive. This location is on the northerly end of a parcel of ground which has been considered for residential subdivision over the past 3 years. The proposed alignment would connect to Southwest Drive at the intersection with Swan Ranch Road, extend easterly north of Stansbury

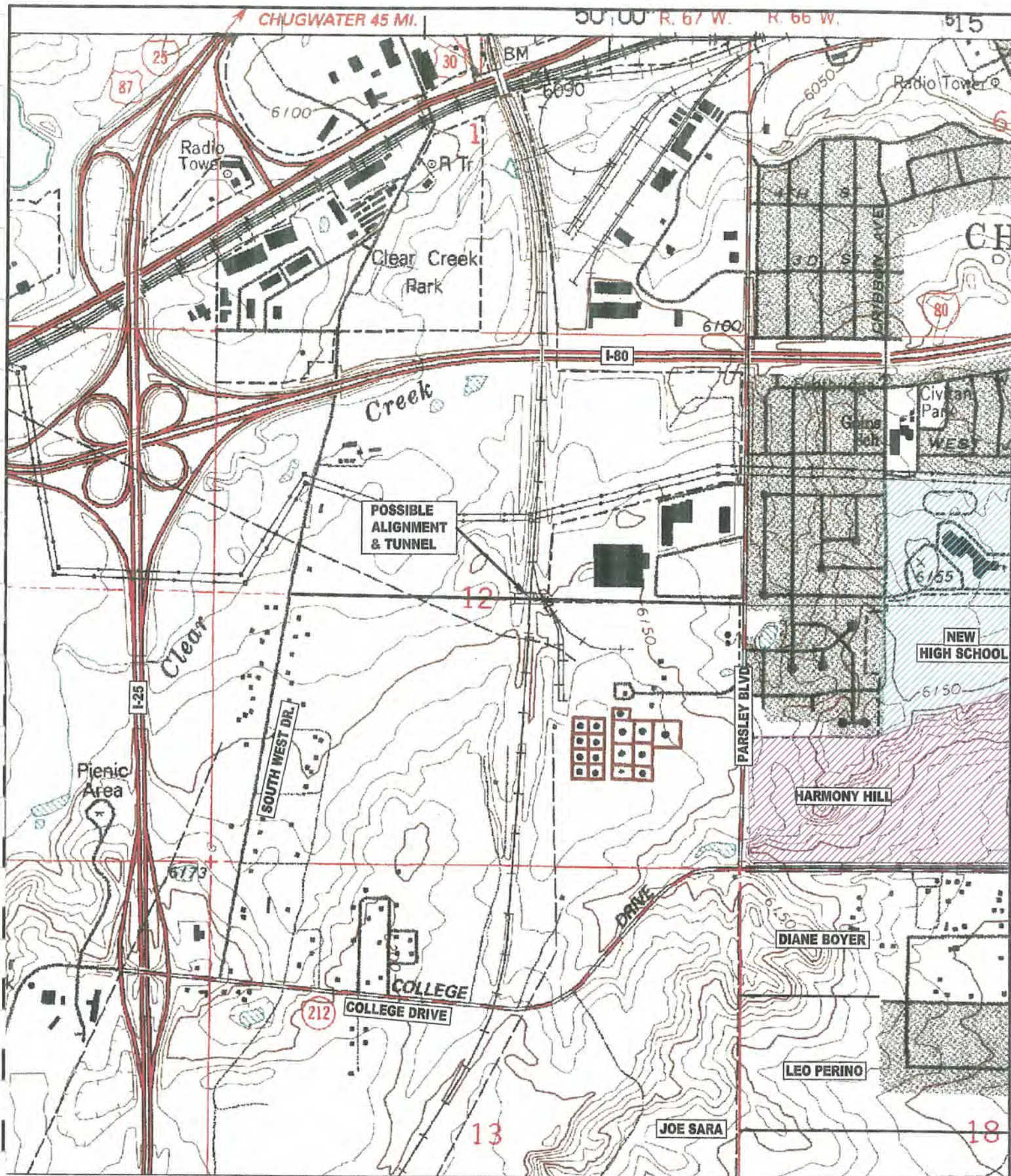


FIGURE NO. 1

Addition, cross the BNSF line just south of the Uncover building, continuing easterly between Uncover and the Kanab pipeline and the petroleum tank farm parcels connecting to Parsley Boulevard north of Sundance Lane. Refer to Figure No.2 for route illustration and adjacent property owners. The proposed right-of-way area south of the route centerline and within the Petroleum tank farm parcel is currently encumbered with numerous groundwater monitoring wells and a small treatment building. The presence of these wells may indicate a potential for contaminated soils and should be investigated as project designs advance.

Crossing Options Evaluated:

The above alignment herein referred to as the Swan Ranch Road extension was evaluated for an At-Grade crossing, an Above-Grade crossing and a Below-Grade crossing. Due to factors mentioned above, the At-Grade crossing does not accomplish the intent of providing an unobstructed connection between the two adjacent minor arterial. Additionally, this option would not be supported by the BNSF due to impacts with their current track operations.

The Above-Grade option, based on a preliminary profile, and the BNSF requirement that the structure be able to provide a 24 foot vertical clearance above the track elevation, was deemed not economically feasible.

The Below-Grade Crossing therefore was determined to be the most attractive option to complete a 10% level of evaluation on.

Below-Grade Crossing Option:

Primary requirement for emergency vehicles requires a 20 foot clear passage width with a clearance height of 14 feet. With a minimum street width of 40 feet, our evaluation is based upon installation of two (2) 20 foot Below-Grade box culverts. Traffic within each box culvert would convey traffic in one direction only. A conceptual sketch of this crossing is provided in Figure No. 3.

Discussions with BNSF personnel indicate that these type of structures can be installed while maintaining train traffic overhead. The BNSF under unique circumstance, will even contract directly with the municipality to install the structures. This approach has several benefits some of which are the ability to provide track-ready equipment, experienced railroad contractors are in control and experienced railroad communication of the work within the BNSF right of way is being coordinated in a safe and prudent manner. The railroad right-of-way is 400 feet through the proposed route alignment. The proposed route existing ground contours west of the railroad are very conducive to the below grade profile, however, the existing ground on the easterly side of the railroad is higher than the track elevation and would require extending retaining walls from the box culvert to a point in which slopes could be laid back within an 80 foot proposed street right-of-way. An area of unknown for the Below-Grade crossing is the determination of ground water levels at the proposed location. Future planning and design should allow for site geotechnical borings which would identify this and other necessary soil conditions.



NO.	REVISION	DATE

PREPARED FOR:
**CHEYENNE AREA
TRANSPORTATION PLANNING
PROCESS**

PROJECT:
ROUTE ALIGNMENT

ISSUED:
**SOUTH WEST DR to PARSLEY BLVD.
STREETS STUDY**

**PRELIMINARY PLAN
NOT FOR CONSTRUCTION**
These plans are for review
only and not to be used
for the construction of any
improvements other
public or private.
All go accept no liability
for any unauthorized
use of these plans.

avi p.c.
engineering
planning
surveying
PHONE (307) 637-6017
2035 WESTLAND ROAD
CHEYENNE, WY 82001

DESIGNED BY: BHP	DRAWN BY: RA
CHECKED BY:	DATE: MARCH 2003

JOB NO.:
2-2380.03

DRAWING NO. _____ OF _____

FIGURE No.2

- **Utility Review**

The majority of the proposed route alignment is across vacant undeveloped land. Within the railroad right-of-way exists a fiber optic line. Other existing utility which would be within or cross the proposed alignment 80 foot ROW corridor includes petroleum pipelines, overhead power lines, and a natural gas pipeline. City sewer mains exist within Southwest Drive ROW and all City utilities exist along the Parsley Boulevard ROW. Provisions to allow extension of future City water mains should be incorporated into future studies and/or planning if the project advances. Conduits for future water, gas and power should be allowed for in any permits or application to the BNSF railroad. Contacts for utilities known or believed may exist in the area are provide in Appendix B.

- **Existing ROW:**

Located on the west end of the proposed route alignment is an existing 30 foot stip of dedicated ROW south of the Section line from the Stansbury Addition plat. A copy of this area is provided in Appendix C. The east end of the proposed route alignment from the BNSF railroad ROW to Parsley Boulevard is centered on the Cheyenne Progress Center boundary line. The plat indicates that an access easement of 80 feet exists on the easterly 821 feet. This property was originally owned by the City of Cheyenne. It appears that part of the subdivision has since been conveyed to private sector interests. It is unclear who retained ownership of the access easement. A copy of this plat is also provided in Appendix C.

- **Proposed New ROW:**

With the exception of the above two parcels, an 80 foot right-of-way corridor would be required. Not including the railroad ROW this amounts to approximately 7.5 acres. The potential exists that portions of the ROW may be dedicated without cost as vacant land is plated for subdivision.

- **Probable Construction Cost Opinion:**

Estimated quantities have been determined based on the Below-Grade crossing option and on the proposed route alignment. A preliminary centerline profile was developed to approximate earthwork volumes. Refer to Figure No.4 . A standard 40 foot back of curb to back of curb street section was considered with a 3.5 foot sidewalk on one side and a 5 foot detached walk on the other. Profile grades on the east side of the railroad track crossing were maximized to reduce anticipated retaining wall lengths and cost. No utility system extension costs have been allowed for other than sleeves through the railroad ROW. Land acquisition cost for street ROW have not been estimated as well.

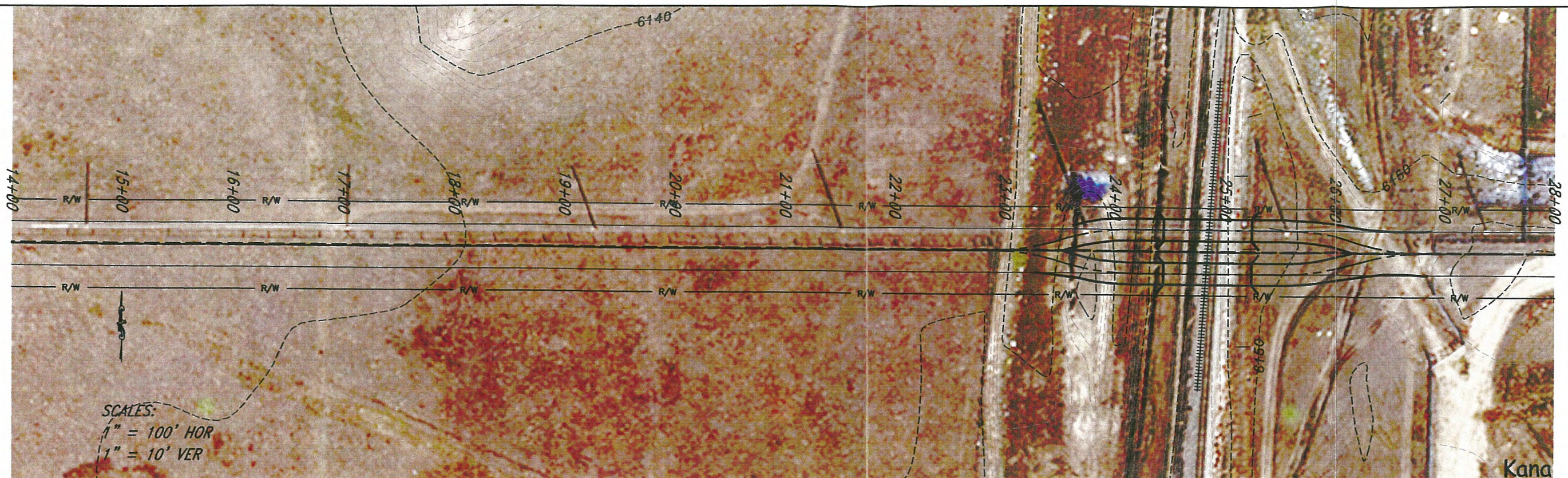
SWAN RANCH ROAD EXTENSION SOUTH WEST DRIVE TO PARSLEY BLVD. CONCEPTUAL CONSTRUCTION COST OPINION				
ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
Contract Bond	LS	1	10,000.00	\$ 10,000.00
Mobilization	LS	1	125,000.00	\$ 125,000.00
Traffic Control	LS	1	7,500.00	\$ 7,500.00
Portland Cement Concrete Pavement	SY	1500	38.50	\$ 57,750.00
Plant Mix Bituminous Pavement	TON	2400	55.00	\$ 132,000.00
Curb and Gutter, Type "A"	LF	8600	12.00	\$ 103,200.00
Curb Turn Fillets 15' R	EA	4	1,500.00	\$ 6,000.00
Crushed Base	TON	5500	8.00	\$ 44,000.00
Water Main Sleeve 24"	LF	400	36.50	\$ 14,600.00
Drop Inlets	EA	8	2,000.00	\$ 16,000.00
Pipe Culvert	LF	200	45.00	\$ 9,000.00
Sidewalk	SY	4250	20.00	\$ 85,000.00
Unclassified Excavation	CY	22500	5.00	\$ 112,500.00
Seeding & Mulching	AC	850	38.00	\$ 32,300.00
Utility Adjustments	LS	1	15,000.00	\$ 15,000.00
Miscellaneous Force Account	FA	1	60,000.00	\$ 60,000.00
Removal of Obstructions	LS	1	14,100.00	\$ 14,100.00
Box Culvert 20'x 15'	LF	200	5,000.00	\$ 1,000,000.00
Retaining wall	SF	7200	35.00	\$ 252,000.00
Topsoil Storing, & Placing	CY	7000	2.50	\$ 17,500.00
Storm Water Control	LS	1	20,000.00	\$ 20,000.00
Stabilization Fabric	SF	3300	1.50	\$ 4,950.00
Electrical; Wire, Pullboxes, PVC, etc.	LS	1	100,000.00	\$ 100,000.00
Concrete Light Supports and Foundations	EA	15	3,000.00	\$ 45,000.00
Trees	EA	45	900.00	\$ 40,500.00
Street Signs and Posts	EA	25	250.00	\$ 6,250.00
SUBTOTAL				\$ 2,330,150.00
DESIGN (8%)				\$ 186,412.00
CONSTRUCTION MANAGEMENT (10%)				\$ 233,015.00
SUBTOTAL				\$ 2,749,577.00
CONTINGENCY (15%)				\$ 412,436.55
TOTAL				\$ 3,162,013.55

Conclusion:

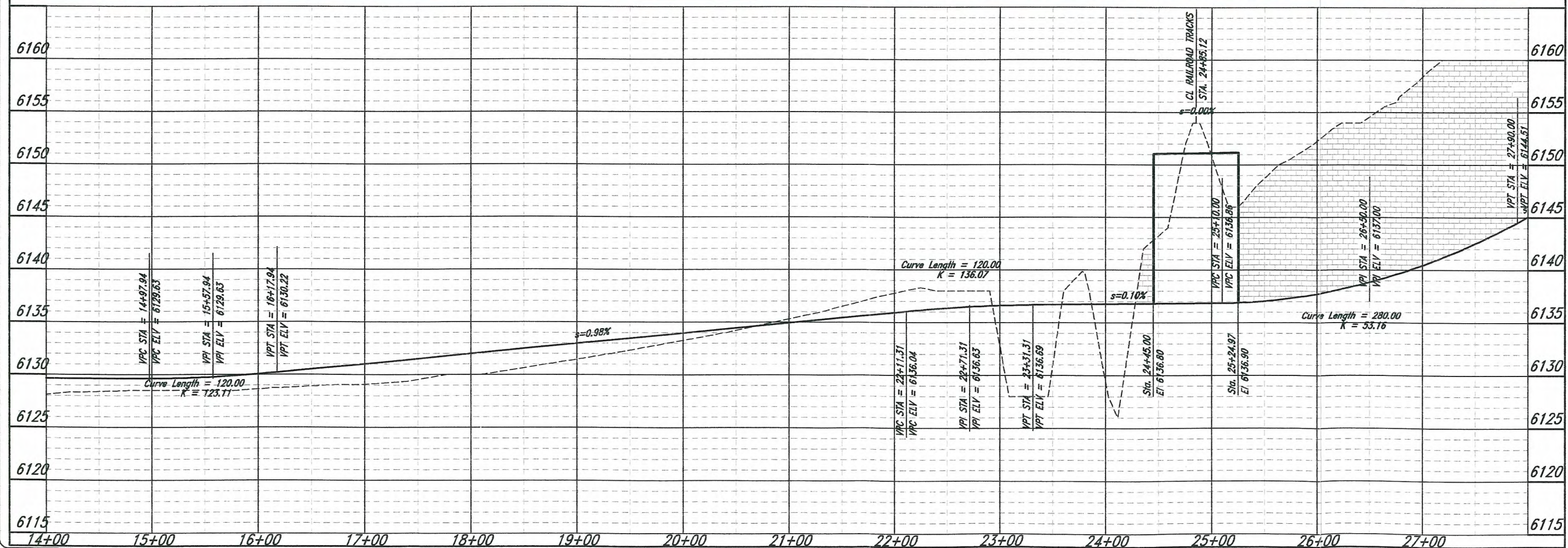
The purpose of this study was to determine if an access route, clear of obstructions, can be constructed between South West Drive and Parsley Boulevard south of I-80 and north of College Drive. Upon our analysis, the answer is absolutely yes it can be. However, it should be noted that our investigation was based on one alignment only and the final alignment will be dependent on the outcome of several factors including, but not limited to;

1. ROW acquisition from willing private property owners;
2. Available funding sources;
3. Approval of BNSF Railroad;
4. Presence and depth to groundwater; and
5. Extent of soil contamination and need to maintain groundwater monitor wells.

Significant alignment deviations will create their own unique issues even though they may avoid some of the above items and the effectiveness of the connection will be muted if the connection route alignment is shifted to far north of south of the study location.



SCALES:
 1" = 100' HOR
 1" = 10' VER



NO.	REVISION	DATE

PREPARED FOR:
CHATT

**SOUTHWEST/WALTERSCHEID
 FEASIBILITY STUDY**

CONNECTION PLAN & PROFILE

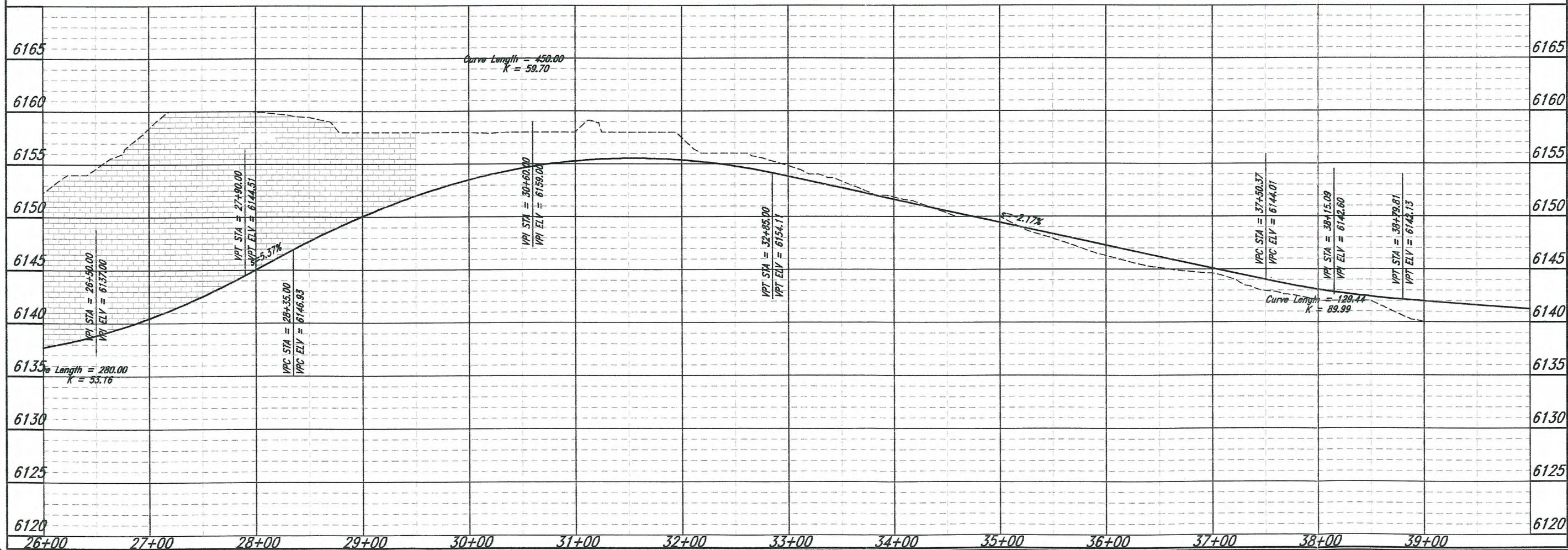
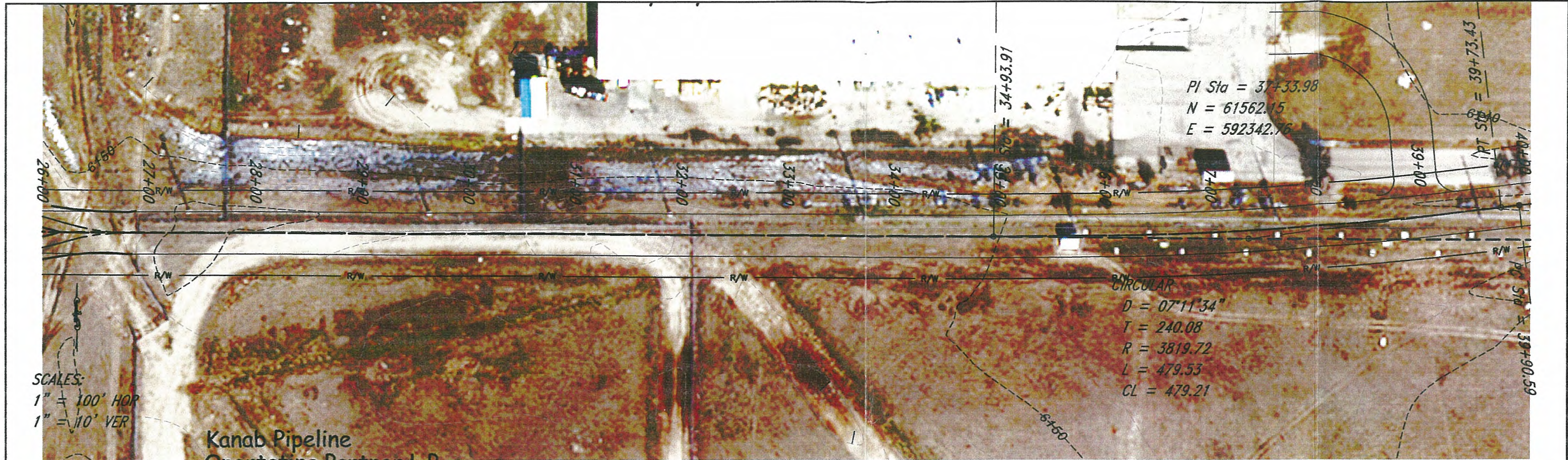
PRELIMINARY PLAN
 NOT FOR CONSTRUCTION
 these plans are for review
 only and not to be used
 for the construction of any
 improvements either
 public or private.
 All pc accepts no liability
 for any unauthorized
 use of these plans

**engineering
 planning
 surveying** p.c.
 PHONE (307) 637-8017
 2035 WESTLAND ROAD
 CHEYENNE, WY 82001

DESIGNED BY: BHP	DRAWN BY: RLA
CHECKED BY: BHP	DATE: 12/02

JOB NO.:
2-2380.02

Figure 3B



DATE	
REVISION	
NO.	

PREPARED FOR:
CHATT

PROJECT:
**SOUTHWEST/WALTERSCHEID
FEASIBILITY STUDY**

DRAWING TITLE:
CONNECTION PLAN & PROFILE

DESIGNED BY:
BHP

CHECKED BY:
BHP

DRAWN BY:
RLA

DATE:
12/02

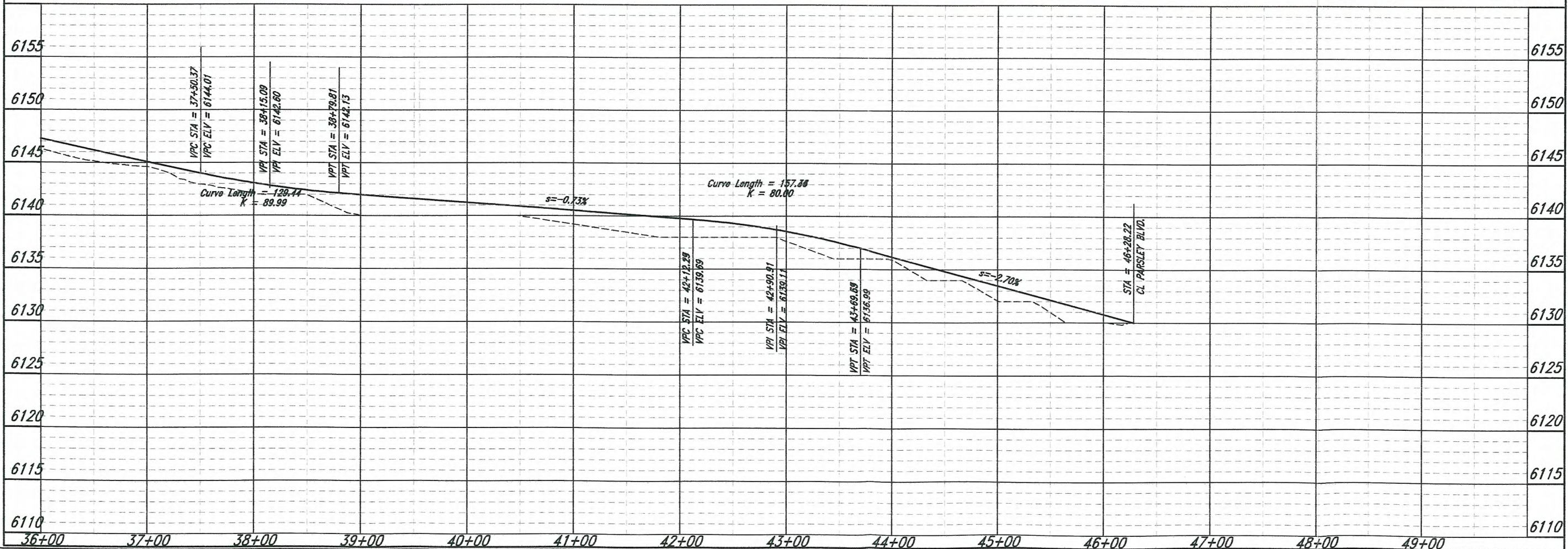
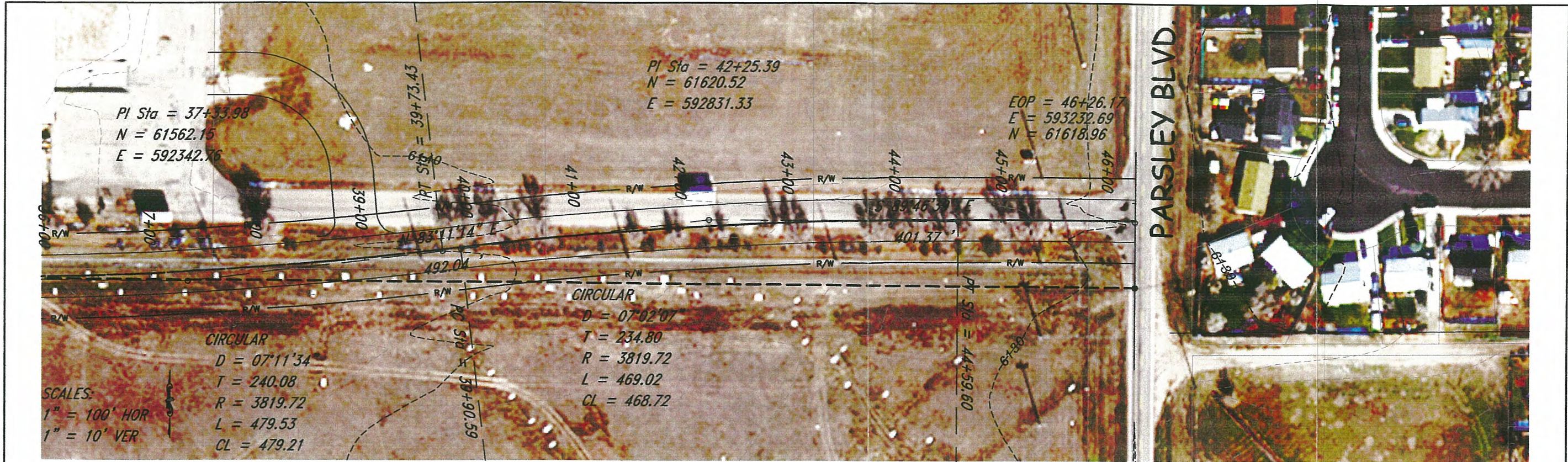
JOB NO.:
2-2380.02

FIGURE 3C

PRELIMINARY PLAN
NOT FOR CONSTRUCTION
These plans are for review
only and not to be used
for the construction of any
improvements either
public or private.
All persons accept no liability
for any unauthorized
use of these plans.

**engineering
planning
surveying**

PHONE (307) 637-6017
2035 WESTLAND ROAD
CHEYENNE, WY 82001



DATE	
REVISION	
NO.	

PREPARED FOR: CHATTP

PROJECT: SOUTHWEST/WALTERSCHEID FEASIBILITY STUDY

DRAWING TITLE: CONNECTION PLAN & PROFILE

PRELIMINARY PLAN
NOT FOR CONSTRUCTION
these plans are for review
only and not to be used
for the construction of any
improvements either
public or private.
All go accepts no liability
for any unauthorized
use of these plans

engineering
planning
surveying
bi p.c.
PHONE (307) 437-8017
2035 WESTLAND ROAD
CHEYENNE, WY 82001

DESIGNED BY: BHP	DRAWN BY: RLA
CHECKED BY: BHP	DATE: 12/02

JOB NO.: 2-2380.02

FIGURE 3D

● APPENDIX F ●

BNSF PRIVATE CROSSING PROCESS INSTRUCTIONS

Bill Owens
432-7321

PRIVATE CROSSING PROCESS INSTRUCTIONS

How to apply for a permit:

In an effort to effectively facilitate the permit process, BNSF has partnered with Staubach Global Services who is committed to provide professional Real Estate Services. This web site is intended to provide you with all the information you should need to apply for a permit to access BNSF's property through Staubach.

If your crossing is **over** BNSF property*, complete the application, print and mail with the following:

- The **\$250.00** (non-refundable) **processing fee**, check made payable to The Burlington Northern and Santa Fe Railway Company. BNSF requires the processing fee be sent with the application, or it will be returned.
- **Two sets of drawings** of the area to be occupied. (Include: streets, distance from tracks and streets, mileposts if available and any distinguishing land marks.)

**TO: Staubach Global Services
Permits Department
5650 N. Riverside Drive, Suite 101
Fort Worth, Texas 76137**

If the information is not complete or is incorrect, it will delay the permit process. Please ensure all information is accurate as each change will add \$250 to the processing fee.

Permit Process:

1. Once received by Staubach, the application and drawing will be forwarded to the engineering firm to prepare the Exhibit A drawings for the contract. **This process takes approximately 10 to 15 working days.**
2. When the Exhibit A is completed, information will be forwarded to BNSF's local Roadmaster and the Director of Field Safety for approvals, **and will take a minimum of 30 days.** Once approved, a contract will be prepared and two (2) copies will be forwarded to you for original signature.

Note: If this is a **new** crossing, an estimate by BNSF Engineering will be prepared. **This will take an additional 30 days.**

Note: Request for a private crossing may be denied by BNSF for safety and operational reasons. The \$250 processing fee will not be refunded in the event of such denial, as noted above.

3. Once received by your office, forward the signed contracts (2 copies with original signatures), along with the appropriate **payment and Certificates of Insurance (as required by the contract)** to Staubach Global Services Permits Dept.
4. The final contracts with original signatures are presented to the Permits Manager for execution **provided ALL certificates and payments are received.**

GUS MELONAS
gus.melonas@bnsf.com

BOB CARTER
201 NORTH 7TH ST
LINCOLN NEBRASKA
68528
402-458-7515

5. Once the contract is executed, one original will be returned for your files.
6. The cover letter for the executed contract will list the Roadmaster's name and phone number. **You will need to contact the Roadmaster five (5) days prior to beginning work.**

Costs:

Costs for private crossings will be determined by the BNSF.

Please be advised the average time period for completion of this process is 60 to 90 days from the time that the application is received. Every effort will be made to complete this process in a timely manner.

Insurance Requirements as outlined in the following Agreements:

License for Bicycle Path/Pedestrian Walkway

License for Private Crossing

Licensee shall furnish to Staubach an acceptable certificate of insurance to reflect the following coverage has been secured:

- **Commercial General Liability Insurance.** Contractual liability with a combined single limit of a minimum of \$2,000,000 each occurrence and an aggregate limit of at least \$4,000,000.
- **Business Automobile Insurance.** Combined single limit of at least \$1,000,000 per occurrence.
- **Workers Compensation and Employers Liability insurance** Employers' Liability with limits of at least \$500,000 each accident, \$500,000 by disease policy limit, \$500,000 by disease each employee.
- **Railroad Protective Liability insurance** with coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate.
- Severability of interest and naming Licensor and Staubach Global Services, Inc. as additional insureds shall be indicated on the certificate of insurance above (excluding Workers Compensation and if applicable, Railroad Protective).

Please note: These limits are subject to change at any time without notice. An Agreement will be provided to you which contains details concerning insurance requirements.

* If you are in need of a railroad crossing to go underneath the tracks, please contact BNSF's public project staff at <http://www.bnsf.com/pubprojects>.

Revised 2/1/02

APPLICATION FOR PRIVATE CROSSING
TO BE COMPLETED BY APPLICANT

BNSF



Staubach Global Services, Inc.
5650 North Riverside Drive, Suite 101
Fort Worth, TX 76137
Attn: Permit Services

To be completed for Residential use:

Licensee: _____ Daytime Phone: _____
(Legal name as shown on the Permit)
Address: _____
(Street) (City) (State & Zip Code)

To be completed for Commercial/Industrial use:

Licensee: _____ Daytime Phone: _____
(Legal name as shown on the Permit)
Address: _____
(Street) (City) (State & Zip Code)

Corporation: _____ State in which incorporated: _____
Is Applicant a Railroad Shipper? ☐ Yes ☐ No
If yes, BNSF Marketing Rep. Name and Phone No.: _____

The following is to be completed by all applicants:

Type of Crossing (plank, concrete, etc.): _____ New ☐ Existing ☐ Width _____

Crossing Location: _____ City: _____ County: _____ State: _____

Section: _____ Township: _____ Range: _____ Highway Name/No.: _____

Temporary ☐ Permanent ☐ Crossing, located at RR Milepost _____ DOT# _____

* If temporary, specify time period crossing will be required: _____ months _____ days

What use will be made of the crossing: _____
(Farm, Residential, Commercial/Industrial)

User vehicle type: _____ Total number of vehicles crossing per day: _____
(auto, pickup, van, if industrial list type)

Other private crossing in vicinity: ☐ Yes ☐ No
If yes, give distance and direction from the crossing _____

What is the distance of the closest public crossing in either directions: _____

Do you own or lease the land on either side of your crossing: ☐ Lease ☐ Own
If leased, provide owner's name _____ Phone No: _____

and written approval for crossing from legal owner.

If this is an existing crossing, how many families are using it now? _____ If known, list names and addresses, if possible.
Use reverse side of form.

If for Cooperative use, please provide names _____
and Permit No. _____ held by other users.

and provide proof of land ownership.

What are future plans for this property? _____

Applicant understands he or she will be requested to sign a regular crossing Permit, which will provide that Applicant will 1) assume the cost to construct the crossing, 2) furnish insurance as requested by The BNSF Railway, 3) assume the cost to remove the crossing if crossing is temporary, and 4) reimburse The BNSF Railway for the expense incurred to maintain the crossing.

Applicant will be responsible for keeping gates closed and rail flangeways free of obstruction.

Date: _____ Applicant: _____
Print: _____
Daytime Phone: _____

● APPENDIX G ●

BNSF UTILITY CONTACTS

BNSF CONTACTS

Bill Owens		432-7321
Bruce Paulnicki	Engineering Dept.	303-480-7569
Tim McCann	Operations Dept.	303-480-6393
Ed Gallagher		303-907-2091
Lynn Hartley	Public Works	913-551-4540
Gene Allian	Project Engineer	303-480-6586

UTILITY CONTACTS

West Gas	Doug Dalton	970-395-1229
Western Area Power		1-800-835-0547
Xcel Energy	Bruce Wise	307-778-2154
Conoco Pipeline Co.		1-800-231-2551

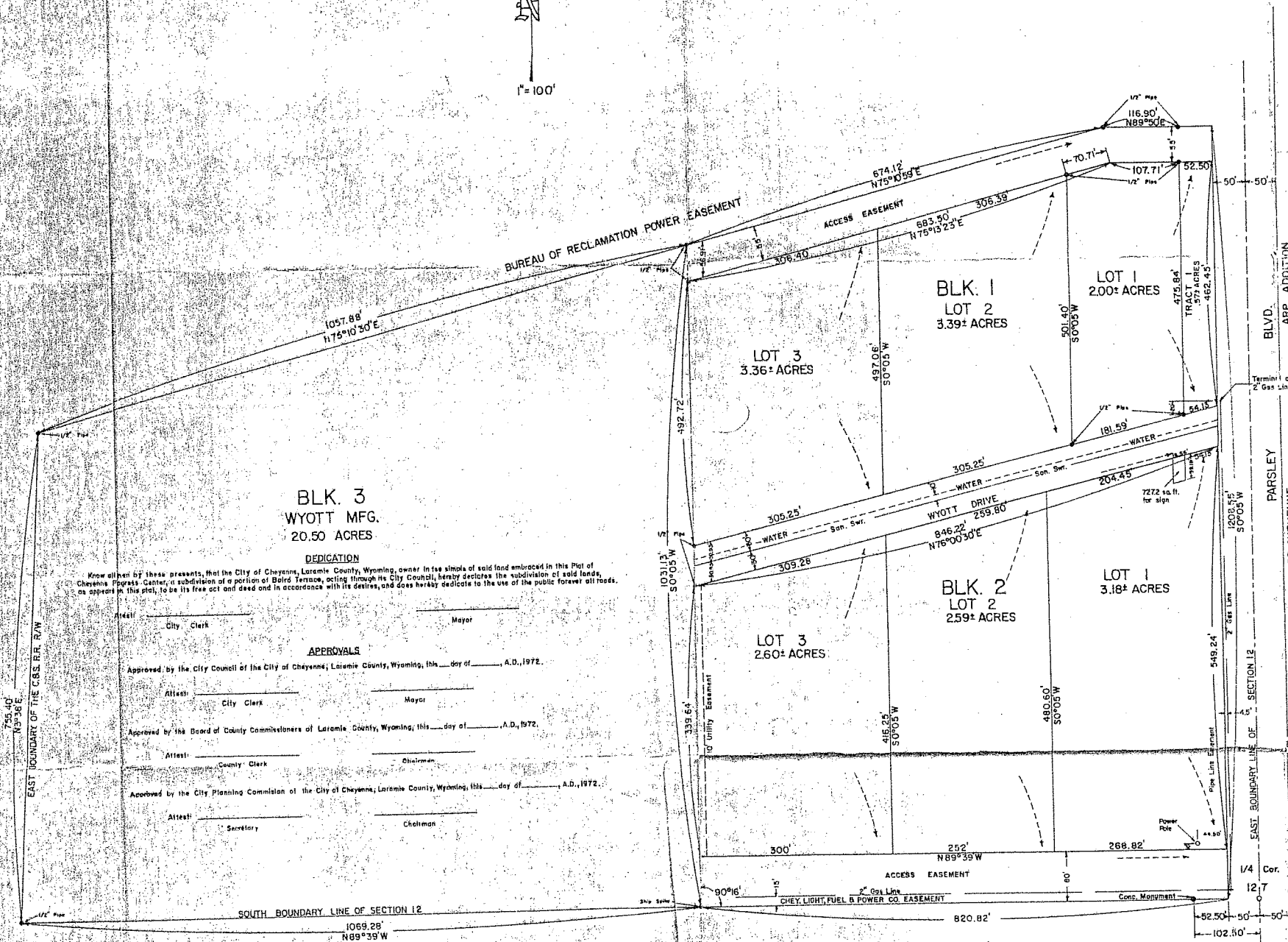
● APPENDIX H ●

AREA PLATS

CERTIFICATE OF ENGINEER-SURVEYOR

I, Robert C. Young, here certify that this plat was made from official records in the County Clerk's Office of Laramie County, Wyoming, and is correctly shown. All portions described were shown on the ground by Robert C. Corbell, Mayor, during an actual survey made by him, for which I certify to be correct.

ROBERT C. YOUNG
Wy. Reg. No. 860
E. & L. S.



Know all men by these presents, that the City of Cheyenne, Laramie County, Wyoming, owner in fee simple of said land embraced in this Plat of Cheyenne Progress Center, a subdivision of a portion of Bald Terrace, acting through its City Council, hereby declares the subdivision of said lands, as shown on this plat, to be its free act and deed and in accordance with its desires, and does hereby dedicate to the use of the public forever all roads.

Attest: _____ Mayor

City Clerk

APPROVALS

Approved by the City Council of the City of Cheyenne, Laramie County, Wyoming, this ____ day of _____, A.D., 1972.

Attest: _____ Mayor

City Clerk

Approved by the Board of County Commissioners of Laramie County, Wyoming, this ____ day of _____, A.D., 1972.

Attest: _____ Chairman

County Clerk

Approved by the City Planning Commission of the City of Cheyenne, Laramie County, Wyoming, this ____ day of _____, A.D., 1972.

Attest: _____ Chairman

Secretary

CHEYENNE PROGRESS CENTER
SCALE: 1" = 100'
DATE: _____
BY: _____

Colors -
Deeds for BLK 1
Lots 1, 2, & 3
BLK 3

CHAPTER 3

EAST CHEYENNE AND CAMPSTOOL TO SOUTH INDUSTRIAL ROAD CONNECTOR

Tank Farm

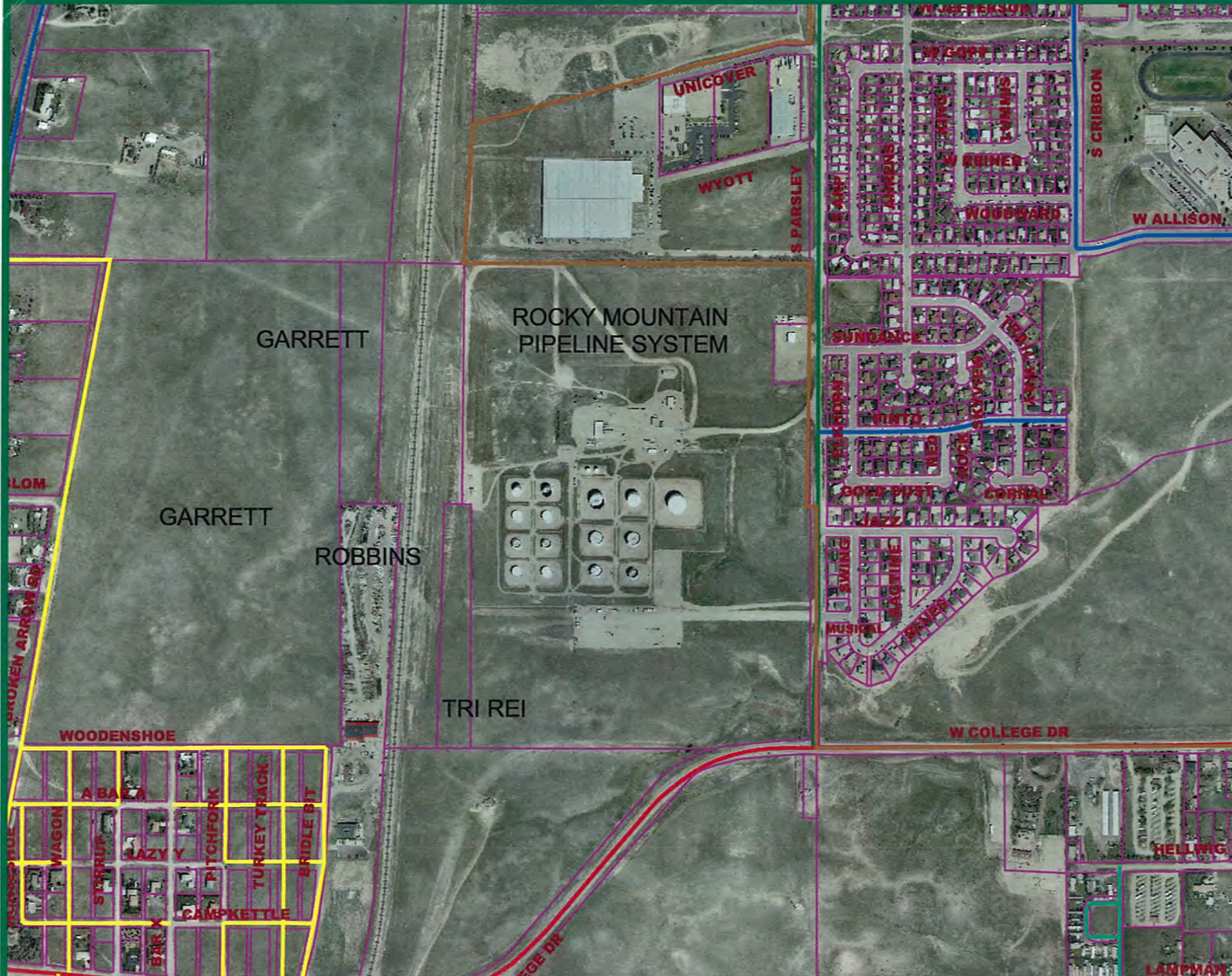
300 0 300 600 Feet



This map was made possible through the Cheyenne/Laramie County Cooperative GISProgram and is for display purposes only. Printed in the City/County Development Office



- City / County Bndy.
- City / County Bndy.
- City Street Center Line
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Platted Not Built
- Private
- Ownership
- Creeks & Lakes
- Neigh



Aerial Photo
as of 5/2005



4/4/06

BTC

Bruso

700 0 700 1400 Feet



This map was made possible through the Cheyenne/Laramie County Cooperative GIS Program and is for display purposes only. Printed in the City/County Development Office



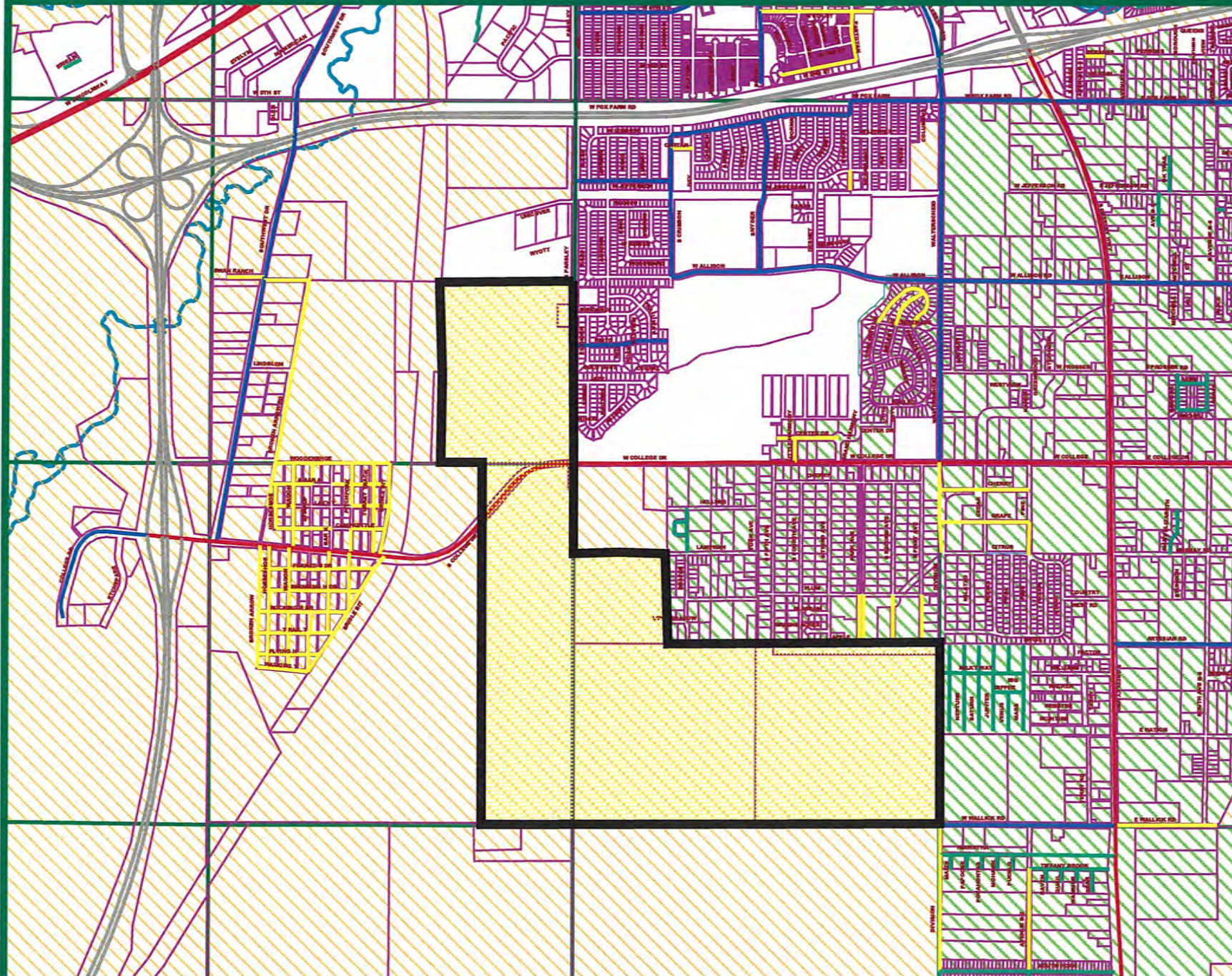
- City Street Center Line
- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Platted Not Built
- Private
- Ownership
- Sections
- Reimbursements/Escrow
- Scwsd.shp
- County Area
- County
- Creeks & Lakes
- Neigh

Aerial Photo as of 5/2005



4/4/06

BTC



Campstool Road to South Industrial Road Connection: **Supplemental Study**

Introduction:

The objective of the South Cheyenne East Corridor Study was to evaluate the feasibility of a connector street between Campstool Road and South Industrial Road. The B & L property and roadway alignments extending easterly of Avenue C extended to Campstool Road. The area lying south of Crow Creek bounded by College Drive and Avenue C extended is controlled by primarily one major landowner who for the foreseeable future will be committed to maintaining historic ranching of this area and thus this area was not elaborated in this study at this time.

Existing Conditions:

The existing land use for a majority of the South Cheyenne East Corridor Study is agricultural use. Lummis Livestock Company LLC, (1825 Campstool Road, Cheyenne, WY 82007) and B & L Development (P.O. Box 14760, Jackson, WY 83002) own much of the land in the study area.

Future Land Use:

The majority of the land in the study is proposed to remain for agricultural use. The area north of the Burlington Northern Railroad and south of Interstate 80 is proposed for future land use considerations to consist of residential (539 acres), commercial (15 acres) and industrial (75 acres) use. See Master Plan for locations.

Campstool Road to South Industrial Connector:

The proposed alignment of the Campstool Road to South Industrial Connector would utilize the existing abandoned railroad alignment to avoid any obstructions and provide a much needed connection between Campstool Road and South Industrial Road. The proposed alignment is composed of 2465 lineal feet of roadway and would incorporate utilization of an existing underpass crossing at Interstate 80. This was economically feasible when selecting this route because two bridges on Interstate 80 already exist and no modification would have to be made to cross under Interstate 80. This will not adversely affect any traffic disruption along Interstate 80. Furthermore, a separate bike path, just north of the proposed roadway should be considered within the 100' Right-of-way to connect the Sun Valley greenway to South Industrial Road. Also, a drainage culvert is proposed at each of the tie-in locations.

- **Utility Review**

There are no known existing utilities within the proposed alignment Right-of-way. Provisions to allow extension of future City water mains, sewer mains or other utilities such as gas, fiber, telephone, or power should be incorporated into future studies and/or planning if the project advances.

- **Existing ROW:**

The existing 200' Right-of-way that the proposed new alignment follows is the abandoned Burlington Northern Railroad Right-of-way that has been conveyed to the Wyoming Department of Transportation (Deed - Book 1140, pages 526-534). Currently, WYDOT is in the process of transferring Right-of-way to the City of Cheyenne. This alignment provides a feasible and unobstructed route from Campstool Road to South Industrial Road.

- **Proposed New ROW:**

The new Right-of-way is proposed to follow the existing railroad Right-of-way. A 200 foot Right-of-way is proposed for the connector. Also, a 42' roadway width was used for the preliminary design. This preliminary roadway section consists of two 12' travel lanes with a 12' center turn lane and 3' shoulders. An area of proposed new Right-of-way acquisition is recommended at the Campstool interchange to provide a smooth tie-in point.

- **Probable Construction Cost Opinion:**

Estimated quantities have been determined based on utilizing the existing railroad Right-of-way for the proposed new alignment. A 42' travel way was considered along with 24" Type 'A' curb and gutter along both sides of the alignment. The street section consists of 6" of hot plant mix bituminous pavement (Type II) over 9" of crushed base (Grading 'W'). Also, a detached 10' wide concrete bikepath was added to connect to the Sun Valley bikepath in order to extend the greenway to South Industrial Road and beyond. Land acquisition costs for street Right-of-way have not been estimated.

Conclusion:

The purpose of this study was to determine if an access route, clear of obstructions, can be constructed between Campstool Road and South Industrial Road. Upon our analysis, we have concluded that the proposed new alignment is the best and most economical route to connect Campstool Road to South Industrial Road.

Attachments:

- 1) Cost Estimate
- 2) Plan and Profiles

2-2380

South Cheyenne Streets Probable Cost Opinion (East Corridor)

02/17/04

Prepared by: AVI pc - RSR

ITEM NO.	ITEM	UNIT	PLAN QUANTITY	UNIT PRICE	ENGINEER'S ESTIMATE
	<i>Campstool / South Industrial Road Connecto</i>				
1	Culverts	EA	0	\$3,000.00	\$0.00
2	Linear Grading	STA	24.7	\$250.00	\$6,175.00
3	9" Crushed Base Grading 'W'	TON	6350	\$10.00	\$63,500.00
4	24" Type A Curb and Gutter	LF	4930	\$12.00	\$59,160.00
5	6" Hot Plant Mix Bit Pvmt Type II	TON	4025	\$38.00	\$152,950.00
6	4" Sidewalk	SY	0	\$20.00	\$0.00
7	4" Bikepath	SY	2750	\$20.00	\$55,000.00
				<i>Subtotal</i>	\$336,785.00
				<i>Total</i>	\$336,785.00

CHAPTER 3

APPENDIX I

CAMPSTOOL ROAD TO SOUTH INDUSTRIAL ROAD ROW DESCRIPTION

QUITCLAIM DEED

That for and in consideration of the sum of Ten Dollars (\$10.00) and other valuable considerations, the receipt of which is hereby acknowledged and confessed, THE TRANSPORTATION COMMISSION OF WYOMING, hereinafter called the grantor, hereby remises, releases and quit claims to _____, its assigns or successors herein called the grantee, the following described lands located in the County of _____ and State of Wyoming, to-wit:

A parcel of land located in portions of the NW¼, SW¼ & NW¼SE¼ of Section 2, T. 13 N., R. 66 W. of the 6th P.M., Wyoming as described in REC# 353502, BK# 1729, PG# 582-584 of the Laramie County Records and more particularly described as follows:

"EXHIBIT "A" Any and all right title and interest in and to the property as described as "Parcel NO. 3" in that certain Quitclaim Deed from The State Highway Commission of Wyoming to Union Pacific Railroad Company recorded August 1, 1983 in Book 1184 Page 1501 Official Records Laramie County, Wyoming."

And as in that certain Quitclaim Deed recorded in Book 1184 Page 1501 of the Laramie County Records, described as follows:

"PARCEL NO. 3 A strip of right of way 200 feet in width, being 100 feet on each side of the centerline of Burlington Northern Railroad Company's main line railroad track located across the Northwest Quarter (NW¼), the Southwest Quarter (SW¼), and the Northwest Quarter of the Southeast Quarter (NW¼SE¼) of Section 2, Township 13 North, Range 66 West, of the Sixth Principal meridian, Laramie County, State of Wyoming, the said right of way begins at the West line of said northwest Quarter (NW¼), of Section 2 and runs in a southeasterly direction to a line drawn at right angles from the centerline of said right of way at Burlington Northern Railroad Company Engineering Station 221+08.5 located about 343.5 feet Southeasterly of the West line of said Northwest Quarter of the Southeast Quarter (NW¼SE¼) as measured along the said centerline of main line railroad track, said centerline is more particularly described as follows:

Beginning at a point on the west boundary of said Section 2, (Burlington Northern Railroad Company Engineering Station 185+56) from which point the northwest corner of said Section 2 bears N. 0°35'24" W. a distance of 1670.66 feet;

thence S. 56°31'05" E. a distance of 3,552.5 feet to said Engineering Station 221+08.5."

The above described parcel of land contains 16.3 acres, more or less.

Together with all the estate, right, title, interest, property, claim and demand whatsoever, in law as in equity, of the grantor, in or to the above described lands and every part and parcel thereof, with the appurtenances, tenements and hereditaments thereunto belonging. TO HAVE AND TO HOLD all and singular the above mentioned and described lands, together with the appurtenances, unto the grantee and its successors and assigns FOREVER.

The grantor also conveys and quit claims to the grantee any and all after acquired title that the grantor may have to the herein described lands.

Hereby releasing and waiving any and all rights under and by virtue of the Homestead Exemption Laws of this State.

GRANTOR

Dated this, the _____ day of _____, 20____

ATTEST

THE TRANSPORTATION COMMISSION OF WYOMING

Nancy J. Wiehagen, Secretary

for the Wyoming Department of Transportation

RECORDED AUG 1 1983 AT 14 O'Clock P.M.
 708810
 Reception No. JAMES C. WHITEHEAD, Recorder
 QUITCLAIM DEED

Plat No. 14
 Indexed
 Filled
 Amount \$0

THE STATE OF WYOMING, acting by and through THE STATE HIGHWAY COMMISSION OF WYOMING, Grantor, for and in consideration of Ten Dollars (\$10.00) and other valuable considerations, in hand paid, does by these presents remise, release and quitclaim to UNION PACIFIC RAILROAD COMPANY, A Utah Corporation, Grantee, all those parcels of land situated in the City of Cheyenne, Laramie County, State of Wyoming, described as follows:

(24) PARCEL No. 1: A strip of land situate in portions of Block 488 and its vacated alley, vacated 10th Street, vacated 11th Street, and vacated Rollins Avenue, all in the City of Cheyenne, Wyoming, as said block and streets thereof are laid out on the official plat of the City of Cheyenne, in the SE $\frac{1}{4}$ of Section 32, Township 14 North, Range 66 West of the Sixth Principal Meridian, more particularly described as follows:

Commencing at the most easterly corner of Block 484 as shown on said official plat;

thence N. 26°26'39" W. along the northeasterly line of said Block 484, a distance of 63.46 feet to a point on the southwesterly line of the former right of way of the Burlington Northern Railroad Company;

thence S. 54°26'13" E. along said southwesterly line of former right of way, a distance of 152.10 feet to a point that is 15.0 feet distant northeasterly, measured radially from said centerline of proposed lead track of the Burlington Northern Railroad Company, and the True Point of Beginning;

thence continuing S. 54°26'13" E. along said southwesterly line of former right of way, a distance of 68.97 feet to a point that is 15.0 feet distant southwesterly, measured radially, from said centerline of proposed lead track, said point also being the beginning of a non-tangent curve concave southwesterly, having a radius of 446.43 feet that bears S. 13°42'17" W.;

thence southeasterly along said curve and concentric with said centerline, through a central angle of 12°01'24", an arc distance of 93.68 feet;

thence S. 64°16'19" E. along a straight line tangent to the end of the last described curve and parallel with said centerline, a distance of 255.0 feet;

thence N. 25°43'41" E. along a straight line, a distance of 30.0 feet to a point that is 15.0 feet distant northeasterly, measured at right angles, from said centerline;

thence N. 64°16'19" W. along a straight line parallel with said centerline, a distance of 255.0 feet to the beginning of a tangent curve concave southwesterly having a radius of 476.43 feet;

thence northeasterly along said curve and concentric with said centerline, through a central angle of 19°44'43", an arc distance of 164.19 feet to the True Point of Beginning.

Subject, however, to easement dated June 6, 1952, from Chicago, Burlington and Quincy Railroad Company to the City of Cheyenne and State of Wyoming for public road purposes.

(24A) PARCEL NO. 2: All that part of the Northeast Quarter (NE $\frac{1}{4}$) of Section 3, Township 13 North, Range 66 West, of the Sixth Principal Meridian, Laramie County, Wyoming, more particularly described as follows:

Beginning on the east line of the said Northeast Quarter (NE $\frac{1}{4}$) of the said Section 3 at a point 2,125 feet south of the northeast corner of said section and running along N. 78°12' W., 167 feet, and running thence N. 49°12' W., 223 feet and running thence N. 40°12' W., 1,165 feet to the south line of right of way of the Union Pacific Railroad Company, and running thence easterly along the said south line of the right of way of the Union Pacific Railroad Company 1,089 feet to the east line of said Section 3, and running thence south along the said east line of section, 985 feet to the place of beginning.

EXCEPTING, therefrom, the following tracts of land, to wit:

(24B) TRACT NO. 1: That certain parcel of land quitclaimed by the State Highway Commission of Wyoming, Grantor, to Laramie County, Grantee, recorded in Book 1114 at Page 1306 of Laramie County, Wyoming records, described as follows:

All that portion of the above described land lying between the north boundary thereof and a parallel right of way line 90 feet to the left of the southerly side when measured at right angles or radially to the following described survey line of highway, said parallel right of way line beginning at the east boundary and ending on the west boundary of said tract:

beginning at a point on the east boundary of said Section 3 from which the northeast corner thereof bears N. 0°17.3' W. a distance of 1,247.4 feet, said point of beginning also being located on a circular curve to the right, the radius of which is 7,639.4 feet and at which point a line tangent to said curve bears N. 87°39.6' W.;

thence along said curve through a central angle of 0°30.1' a distance of 4.8 feet to the point of ending of said curve;

thence N. 87°00.5' W. a distance of 890 feet, more or less, to a point on the west boundary of said tract of land and containing 4.8 acres, more or less.

(24C) TRACT NO. 2: A tract of land situated in the Northeast Quarter (NE $\frac{1}{4}$) of Section 3, Township 13 North, Range 66 West, Sixth Principal Meridian, Laramie County, Wyoming, and being more particularly described as follows:

Beginning at the point of intersection of the line common to Section 2 and said Section 3 with the centerline of the Burlington Northern Railroad Company (formerly Chicago, Burlington and Quincy Railroad Company) right of way, from which point the Northeast corner of said Section 3, a 3/4 inch diameter iron pipe, bears N. 0°35'24" W., based on the City of Cheyenne Datum, 1,670.66 feet distant and control station "SUN VALLEY" bears N. 30°40'10" W., 864.84 feet distant, said point of intersection situate at City of Cheyenne Ground Datum coordinates (x) = 614,446.67 feet and (y) = 67,755.59 feet;

thence south 0°35'24" E., along said section line, a distance of 48.29 feet to the TRUE POINT OF BEGINNING

thence S. 0°35'24" E., continuing along said section line, a distance of 411.05 feet;

thence N. 10°47'24" W., a distance of 167.00 feet;

thence N. 49°47'24" W., a distance of 222.0 feet;

thence N. 41°16'41" W., a distance of 817.49 feet to a point on the east right of way line of Cleveland Place as shown on the official plat of Rocky Mountain Industrial Park Addition, Second Filing, recorded and filed at the office of the Laramie County Clerk and Ex-Officio Register of Deeds;

thence N. 40°22'08" West (North 39°50'08" West per said plat), a distance of 25.74 feet to a point on the south right of way line of Campetool Road (Wyoming Highway Department Project Number I-80-6(40)362)

thence south 87°13'34" East (South 86°41'34" East per said plat, a distance of 304.42 feet;

thence south 56°31'05" East, parallel to and 40 feet distant from the centerline of aforementioned railroad right of way, a distance of 697.43 feet to the true point of beginning.

SUBJECT, however, to:

1. Easement dated December 4, 1974, from Burlington Northern, Inc., to the State of Wyoming for the construction and maintenance of a drainage ditch and highway grade crossing.

2. Easement dated October 31, 1977, from Burlington Northern, Inc., to the State of Wyoming for the construction and maintenance of a drainage ditch.

(24D) PARCEL NO. 3 A strip of right of way 200 feet in width, being 100 feet on each side of the centerline of Burlington Northern Railroad Company's main line railroad track located across the Northwest Quarter (NW $\frac{1}{4}$), the Southeast Quarter (SE $\frac{1}{4}$), and the Northwest Quarter of the Southeast Quarter (NW $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 2, Township 13 North, Range 66 West, of the Sixth Principal meridian, Laramie County, State of Wyoming, the said right of way begins at the West line of said northwest Quarter (NW $\frac{1}{4}$), of Section 2 and runs in a southeasterly direction to a line drawn at right angles from the centerline of said right of way at Burlington Northern Railroad Company Engineering Station 221+08.5 located about 343.5 feet southeasterly of the West line of said Northwest Quarter of the Southeast Quarter (NW $\frac{1}{4}$ SE $\frac{1}{4}$) as measured along the said centerline of main line railroad track, said centerline is more particularly described as follows:

Beginning at a point on the west boundary of said Section 2, (Burlington Northern Railroad Company Engineering Station 185+56) from which point the northwest corner of said Section 2 bears N. 0°35'24" W. a distance of 1,670.66 feet;

thence S. 56°31'05" E. a distance of 3,552.5 feet to said Engineering Station 221+08.5.

SUBJECT, however, to:

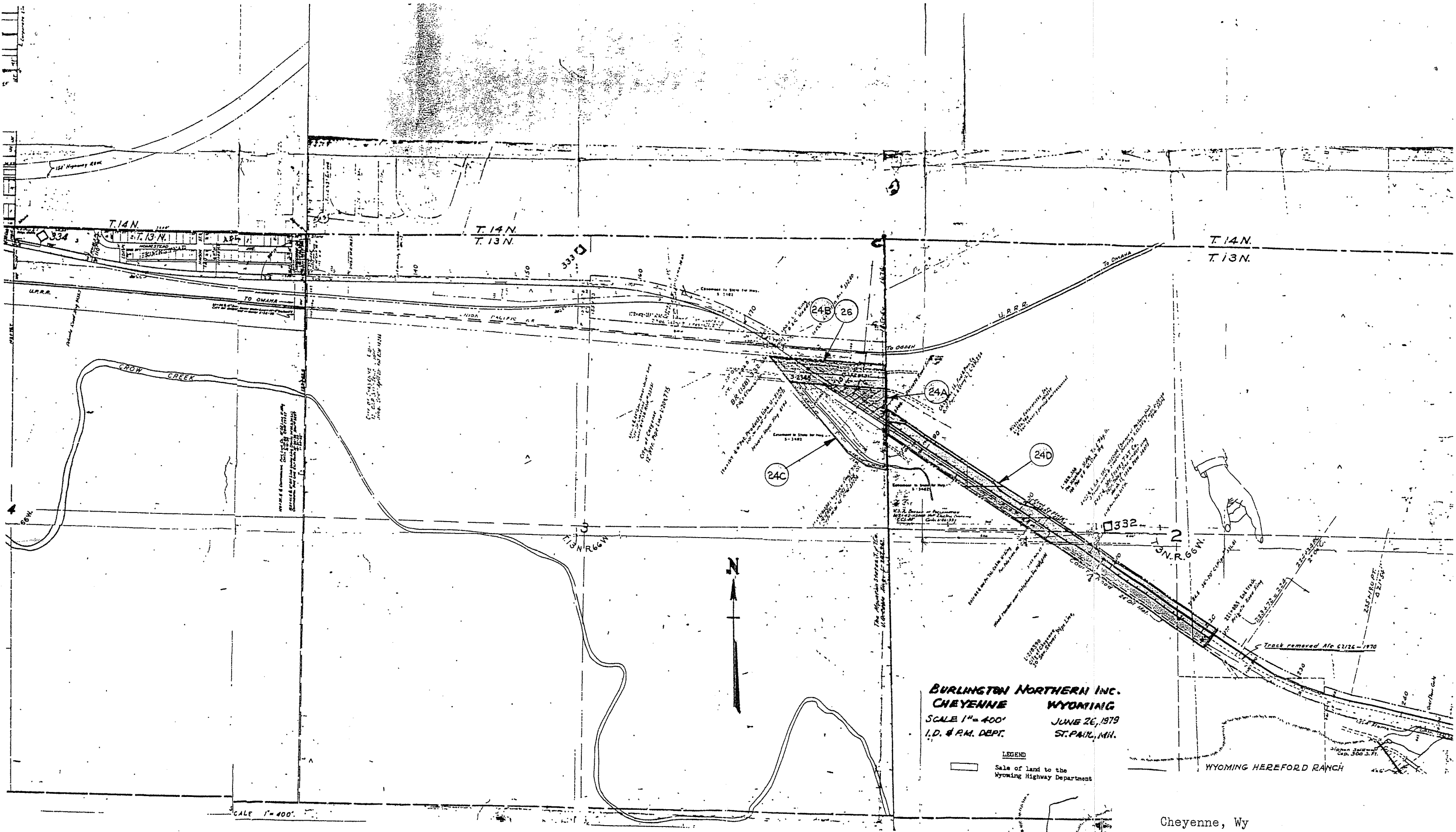
1. Easement dated April 5, 1974, from Burlington Northern, Inc., to the State of Wyoming for construction and maintenance and use of dual overhead highway bridges.

2. Easement dated October 31, 1977, from Burlington Northern, Inc., to the State of Wyoming for the construction and maintenance of a drainage ditch.

3. Rights of the public.

PG 1502

BOOK 1184



Cheyenne, Wy

Land sold by Hwy Commission to others as of March 22, 1994

JUN 1 6 1980

124

O'CLOCK P

M. RECEPTION NO

581550

JANET C. WHITEHEAD, RECORDER

Photographed TC

QUITCLAIM DEED

Posted

Assessor PM

THIS INDENTURE, made the 8th day of

May, 1980, ~~XXXX~~ by and between BURLINGTON NORTHERN INC.,

a corporation organized and existing under and by virtue of the laws of the State of Delaware, successor in interest to Chicago, Burlington & Quincy Railroad Company, GRANTOR, and STATE OF WYOMING, ACTING BY AND THROUGH THE STATE HIGHWAY COMMISSION,

GRANTEE, WITNESSETH:

That the Grantor, for and in consideration of the sum of Ten and no/100 Dollars (\$10.00) and other good and valuable consideration, in hand paid, the receipt whereof is hereby acknowledged, does, by these presents, grant, bargain, sell, CONVEY AND QUITCLAIM, without any covenants of warranty whatsoever, unto the said Grantee, all those parcels of land situated in the City of Cheyenne, Laramie County, State of Wyoming, described on attached Exhibit "A" and by this reference made a part hereof.

IN WITNESS WHEREOF, the Grantor has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer, the day and year first above written.

WITNESS:

BURLINGTON NORTHERN INC.

Chris A. Roberts
Chris A. Roberts

BY [Signature]
Vice President

ATTEST:

BY D.K. North
Assistant Secretary



the Easterly line of said Block 8, said railroad track runs in a Northwesterly and Southeasterly direction across said streets and blocks.

SUBJECT, however, to Easement dated June 6, 1952 from Chicago, Burlington & Quincy Railroad Company to the City of Cheyenne and State of Wyoming for public road purposes.

All of the above parcels being situate in the City of Cheyenne, Laramie County, State of Wyoming.

PARCEL 31

That part of the Northeast Quarter (NE1/4) of Section 3, Township 13 North, Range 66 West, of the Sixth Principal Meridian, Laramie County, Wyoming, more particularly described as follows:

Beginning on the East line of the said Northeast Quarter (NE1/4) of the said Section 3 at a point 2,126 feet South of the Northeast corner of said section and running along North, 78° 12' West, 167 feet, and running thence North 49° 12' West, 222 feet and running thence North 40° 12' West, 1,165 feet to the South line of right of way of the Union Pacific Railway Company, and running thence Easterly along the said South line of the right of way of the Union Pacific Railway Company 1,097 feet to the East line of said Section 3, and running thence South along the said East line of section, 985 feet to the place of beginning.

EXCEPTING, therefrom, the following tract of land, to-wit:

A tract of land situated in the Northeast Quarter (NE1/4) of Section 3, Township 13 North, Range 66 West, Sixth Principal Meridian, Laramie County, Wyoming, and being more particularly described as follows:

Beginning at the point of intersection of the line common to Section 2 and said Section 3 with the center line of the Burlington Northern Inc. (formerly Chicago, Burlington & Quincy Railroad Company) right of way, from which point the Northeast corner of said Section 3, a 3/4-inch diameter iron pipe, bears North 0° 35' 24" West based on the City of Cheyenne Datum, 1,670.66 feet distant and control station "SUN VALLEY" bears North 30° 40' 10" West, 864.84 feet distant, said point of intersection situate at City of Cheyenne Ground Datum coordinates (x) = 614,446.67 feet and (y) = 67,755.59 feet; thence South 0° 35' 24" East, along said section line, a distance of 48.29 feet to the TRUE POINT OF BEGINNING; thence South 0° 35' 24" East continuing along said section line, a distance of 411.05 feet; thence North 78° 47' 24" West, a distance of 167.00 feet; thence North 49° 47' 24" West, a distance of 222.00 feet; thence North 41° 16' 41" West, a distance of 817.49 feet to a point on the East right of way line of Cleveland Place as shown on the official plat of Rocky Mountain Industrial Park Addition, Second Filing, recorded and filed at the office of the Laramie County Clerk and Ex-Officio Register of Deeds; thence North 40° 22' 08" West (North 39° 50' 08" West per said plat), a distance of 26.74 feet to a point on the South right of way line of Campstool Road, (Wyoming Highway Department Project Number I-80-6(40)362); thence South 87° 13' 34" East (South 86° 41' 34" East per said plat), a distance of 304.42 feet; thence South 56° 31' 05" East, parallel to and 40 feet distant from the center line of aforementioned railroad right of way, a distance of 697.43 feet to the true point of beginning.

SUBJECT, however, to:

1. Easement dated December 4, 1974 from Burlington Northern Inc. to the State of Wyoming for the construction and maintenance of a drainage ditch and highway grade crossing.

2. Easement dated October 31, 1977 from Burlington Northern Inc. to the State of Wyoming for the construction and maintenance of a drainage ditch.

EXCEPTING AND RESERVING, however, unto said Burlington Northern Inc., its successors and assigns, in the hereinabove described Parcel 31, all of the coal, oil, gas, casinghead gas and all ores and minerals of every kind and nature underlying the surface of the premises herein conveyed, together with the full right, privilege and license at any and all times to explore, or drill for and to protect, conserve, mine, take, remove and market any and all such products in any manner which will not damage structures on the surface of the premises herein conveyed.

PARCEL 32.

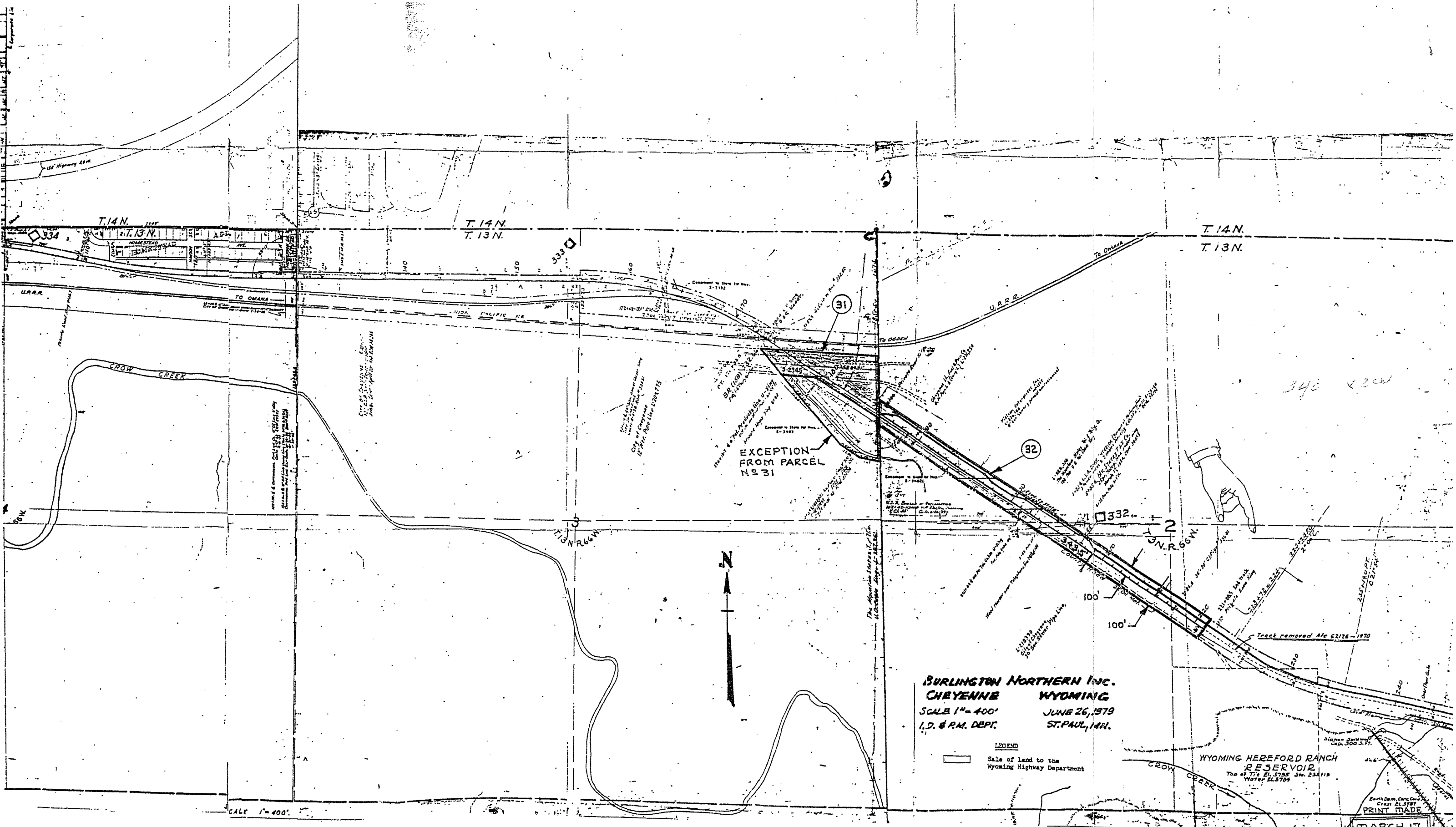
A strip of right of way 200 feet in width, being 100 feet on each side of the center line of Burlington Northern Inc. main line railroad track located across the Northwest Quarter (NW1/4), Southwest Quarter (SW1/4) and Northwest Quarter of the Southeast Quarter (NW1/4 SE1/4) of Section 2, Township 13 North, Range 66 West, of the Sixth Principal Meridian, Laramie County, State of Wyoming, the said right of way begins at the West line of said Northwest Quarter (NW1/4) of Section 2 and runs in a Southeasterly direction to a line drawn at right angles from the center line of said right of way at Burlington Northern Inc. railroad Engineering Station 221+08.5 located about 343.5 feet Southeasterly of the West line of said Northwest Quarter of the Southeast Quarter (NW1/4 SE1/4) as measured along the said center line of main line railroad track.

SUBJECT, however, to:

1. Easement dated April 5, 1974 from Burlington Northern Inc. to the State of Wyoming for construction and maintenance and use of dual overhead highway bridges.

2. Easement dated October 31, 1977 from Burlington Northern Inc. to the State of Wyoming for the construction and maintenance of a drainage ditch.

3. Rights of the public.



BURLINGTON NORTHERN INC.
CHEYENNE WYOMING
SCALE 1" = 400'
JUNE 26, 1979
I.D. & P.M. DEPT. ST. PAUL, MIN.

LEGEND
Sale of land to the
Wyoming Highway Department

**WYOMING HEREFORD RANCH
RESERVOIR**
Top of Tilt EL. 5785' Sh. 234' 119'
Water EL. 5704'

**MARCH 17,
1994**

Sheet 2 of 2
BN R/W ACQUIRE
BY HWY COMM.
BK 1140
PG 526-534
5-8-80