Valley View Estates Feasibility Report
1510 Fabens Rd., Fabens, Texas 79938
Prepared in Conjunction for an Application to the
Texas Department of Housing and Community Affairs
February 28, 2020

Prepared For
Texas Department of Housing and Community Affairs
221 East 11th Street
Austin, Texas 78701–2410
and
Investment Builders Inc.
7400 Viscount Dr., Ste. 109
El Paso, Texas 79925
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(A) Introduction

Metropolitan Capital Partners LLC ("Metro"), Texas Board of Professional Registration Firm #20278, was retained by Investment Builders Inc. to produce a Feasibility Report for the purpose of an application for Low Income Housing Tax Credit to the Texas Department of Housing and Community Affairs ("TDHCA") in the 2020 round. Therefore, the report is written to comply with guidance in the 2020 Qualified Allocation Plan section 15, pages 121 and 122.

Valley View Estates is planned for 40 units of detached single-family housing units. The unit mix will be 22 three bedroom and 18 four bedroom. The development will comply with ADA accessibility requirements. In addition to the housing units, the development will include a clubhouse and swimming pool, two playgrounds and a maintenance building. Covered canopy parking for the tenants will also be provided.

The subject site is a 8.5 acre parcel located in the geographic and business center of the Town of Fabens, Texas, an unincorporated area of the County of El Paso, approximately 31 miles east of downtown El Paso. The site is immediately to the east of the Laureles Del Este LIHTC development at 1510 Fabens Rd. an important connector to Interstate 10 in East El Paso County. The geographic coordinates are 31° 30’ 37.6” N and 106° 08’ 41.5” W.

The site is generally slightly sloping undisturbed scrub brush. The USDA report describes the soil type as (BPC) Blue Point Association, Rolling. Additional soil information will be collected at the time of an on-site soil study by a registered geotechnical engineer.

Based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 0300B, effective date September 4, 1991). Flood Zone A is defined as areas determined to be within the 100 year flood plain. That floodplain map indicates the site is in a Flood Hazard Zone A.

From a utility standpoint, due to its proximity to the major thoroughfare leading to Interstate Highway 10, the site has ample access to proximate water and sewer, electric, gas, cable and telecommunications infrastructure with capacity to serve the site. The utility companies are the El Paso County Water Control and Improvement District #4 (ECWCID#4), El Paso Electric Co., Texas Gas Co., Spectrum Cable, ATT and other telecom providers, respectively.

Metro did not identify any significant atypical items that would negatively impact either the execution, timeliness or cost of construction.

Statement of Acknowledgement

Any person signing this Report acknowledges that the Department may publish the full report on the department’s website, release the report in response to a request for public information and make other use of the report as authorized by law.
(B) Executive Summary

Valley View Estates is planned for 40 units of detached single-family housing. The unit mix will be 22 three bedroom and 18 four bedroom units. The development will comply with ADA accessibility requirements. In addition to the housing units the development will include a clubhouse and swimming pool, two playgrounds and a maintenance building. Covered canopy parking for the tenants will also be provided.

The site plan is arranged in blocks of detached 3 and 4 bedroom housing units with parking immediately adjacent to most units. There will be 1 unit of three bedroom and 1 unit of 4 bedroom fully ADA compliant dispersed throughout the community. Visually and Hearing Impaired units will also be 1-3 bedroom and 1-4 bedroom. Handicapped parking is also distributed to allow for access to the housing units, amenities such as the clubhouse and pool, playgrounds and daily life activities such as dumpsters.

The clubhouse and pool are located at the main entrance to facilitate access for the residents and visitors.

Proximity to community resources, schools, library, full-service grocery store, shopping, banking and other tenant conveniences is a distinct feature of this site.

Figure 1: Vicinity Map
(C) Due Diligence

In order to fully understand the requirements of the local governing jurisdictions, utility providers, and development activities we met or corresponded with a series of representatives from the different organizations. A partial list includes:

- County of El Paso – Mr. Jose Landeros - Planning Director
- County of El Paso – Mr. Jesus Cerna - Planning Department staff
- Texas Department of Transportation – Ms. Margarita Montes, PE – engineering department
- EPWCID#4 – Mr. Jose Ramirez, General Manager
- El Paso Electric Co. – Ms. Melissa Govea, PE distribution department
- Texas Gas Service – Mr. Jorge Sejera, PE new construction department
- El Paso Central Appraisal District
- El Paso Consolidated Tax Office
- El Paso County Fire Department and El Paso County Emergency Services District #2
- Multiple sub-contractors (earthwork, rockwall masonry, site utility)
- Among the technical references we used to prepare this report are:
  - County of El Paso planning maps
  - County of El Paso grading and drainage ordinance
  - USDA Soils Classification maps
  - TxDOT UDAF topographical maps
  - USGS topographical maps
  - El Paso County Tax Assessor maps
  - 2015 IBC Code
  - EPWCID#4 design standards
  - El Paso Electric Co design standards
  - Texas Gas design standards
  - Google Earth

(i) Availability of Utilities

Although located in a rural area, the site is in the business core of the community. As such, there exists robust electrical capacity (115kV transmission and 34kV distribution) adjacent to the property boundaries.

The EPWCID#4 has a 12” water main located on the southern boundary of the site. There are two 6” sewer lines in close proximity to the site. The EPWCID#4 has requested that we split the sanitary effluent streams into two lift stations to connect to the corresponding 6” lines. However, the possibility exists that off-site sewer improvements can be made to increase the size of the sewer main to the south of the property. Costs have been included in the Developers off-site cost matrix.

Texas Gas Service has major trunk lines running along both Fabens.

Based on the foregoing, the author did not identify any impediments for utility availability to this site.
Figure 2: Utility Interconnection Map
February 18, 2020

Mr. Rudolf Montiel, PE
Partner
Metropolitan Capital Partners LLC
7100 Westwind Dr, Ste 250
El Paso, TX 79912

Subject: Valley View Estates-Single Family Homes, Fabens Texas
        Water and Wastewater Service Availability

Dear Mr. Montiel,

This is in reference to your email dated February 14 regarding the proposed 49 single family
units in Fabens Texas. We have visited the site with our District engineer to evaluate our
existing water and wastewater infrastructure for the proposed housing units and have the
following:

**Water**

There exists a 12" water main on Lettunich Street ROW that can provide water service to the
new housing units. The District will discuss with the developer how water service will be
provided to each housing unit.

**Wastewater**

There exists two 6" wastewater mains. One wastewater main is located on Lettunich Street
across the San Felipe arroyo. The other 6" wastewater main is located on Pampa Street also
across the San Felipe arroyo. These two wastewater mains are less than 5 feet in depth.

Each existing 6" wastewater main does not have the flow capacity to service 49 units.
Therefore, for the housing units to be serviced two proposed lift stations will have be constructed
on the developer's property where half the housing units will be service on Pampa St and the
other on Lettunich Street. The District will discuss with the developer how wastewater service
will be provided to each housing unit.

If you have any questions, please contact me at (915)764-2212

Sincerely,

José Ramirez
General Manager

Figure 3: El Paso County Water Control & Improvement District No. 4 - Letter of Serviceability
(ii) Summary of Zoning Requirements

No rezoning of the site is required since the County of El Paso does not have a county-wide zoning or construction ordinance. With respect to the Valley View Estates Site Plan, the project location is currently located in Flood Zone A (See Attachment A), based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 0300B, effective date September 4, 1991). Flood Zone A is defined as areas determined to be within the 100 year flood plain. Thus, a Flood Plain Development Permit and Grading & Drainage Plans are required for the proposed improvements prior to initiating development on the site.
February 24, 2020

Rudolf Montiel, PE, Partner
Metropolitan Capital Partners, LLC
7100 Westwind Drive, Suite 250
El Paso, Texas 79912

RE: Valley View Estates Site Plan Development

Dear Mr. Montiel,

Thank you for meeting to discuss the proposed improvements in Fabens identified as Valley View Estates.

The County's jurisdiction applies to the unincorporated areas of El Paso County only. The incorporated areas include the cities and towns of El Paso, Vinton, Town of Anthony, Horizon City, Socorro, San Elizario and Clint. All of the incorporated areas localities have some form of building codes and land use (zoning) restrictions.

To date, and with the exception of properties located within the San Elizario Historic District, the County does not have zoning or building code regulations. The County enforces subdivision of land through a platting process that requires the provision of utilities, a drainage plan and building setbacks. In addition, property owners may be subject to private covenants and/or deed restrictions stated in their property deed or sales contract. The County does not enforce covenants.

With respect to the Valley View Estates Site Plan we have discussed, the project location is currently located in Flood Zone A (See Attachment A), based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 0300B, effective date September 4, 1991). Flood Zone A is defined as areas determined to be within the 100 year flood plain. Thus, a Flood Plain Development Permit and Grading & Drainage Plans are required for the proposed improvements prior to initiating development on the site.

Please feel free to contact me with any questions.

Regards,

Jose M. Landeros, Director
Planning & Development Department
El Paso County Public Works

Attached: Exhibit A-Flood Zone for Valley View Estates Site Plan

Figure 4: Zoning Jurisdiction Letter
County of El Paso Setback Recommendation

Table 1: County of El Paso Setback Requirements

<table>
<thead>
<tr>
<th>County of El Paso Setback Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>25'-0&quot;</td>
</tr>
<tr>
<td>Each Side</td>
<td>6'-0&quot;</td>
</tr>
<tr>
<td>Back</td>
<td>25'-0&quot;</td>
</tr>
</tbody>
</table>

Offstreet Parking Requirement

For single family dwellings 1 parking space per dwelling.

Phase I Environmental Assessment

The Developer commissioned a Phase I Environmental assessment from CECI. Said report was completed in February 2020. It also did not indicate any significant environmental impacts for the site.

(iii) Subdivision Requirements

The site will NOT be sub-divided nor will it be re-platted. The 8.5 acres are one property as shown in the attached survey by SLI a Texas Registered Land Surveyor.

(iv) PID and Millage Requirements

The Inkwood Estates site is comprised of 5 properties:

Table 2: Property ID Numbers

<table>
<thead>
<tr>
<th>Property</th>
<th>Property ID No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PID U501-000-0000-0005</td>
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</tbody>
</table>
The millage rates for the County of El Paso are:

**Table 3: 2019 Millage Rates**

<table>
<thead>
<tr>
<th>Entity</th>
<th>Millage Rate per $100</th>
</tr>
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<tbody>
<tr>
<td>County of El Paso</td>
<td>0.489</td>
</tr>
<tr>
<td>Fabens ISD</td>
<td>1.338</td>
</tr>
<tr>
<td>El Paso Comm. College</td>
<td>0.141</td>
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<tr>
<td>University Medical Center</td>
<td>0.267</td>
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<tr>
<td>EPWCD#4</td>
<td>0.204</td>
</tr>
<tr>
<td>Emergency Services District #2</td>
<td>0.104</td>
</tr>
</tbody>
</table>

**(v) Development Ordinances**

Development is governed by the County of El Paso as the governing jurisdiction.

The County of El Paso does not have a county wide zoning ordinance nor does it have a construction ordinance. Notwithstanding, the development will be constructed using the 2015 IBC and the City of El Paso building code. We chose the City of El Paso code as a verifiable governing ordinance from a nearby major metropolitan area. Inspection of the improvements will be conducted by a 3rd party inspection firm or Texas licensed civil engineer or architect.

The project location is currently located in Flood Zone A (See Attachment A), based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 0300B, effective date September 4, 1991). Flood Zone A is defined as areas determined to be within the 100 year flood plain. Thus, a Flood Plain Development Permit and Grading & Drainage Plans are required for the proposed improvements prior to initiating development on the site.
Figure 5: County of El Paso Flood Zone Exhibit “A”
(vi) Fire Department Requirements

The County Emergency Services District #2 provides fire protection services to the Fabens area and this site.

Generally, fire hydrants are located in several locations surrounding the site. Anecdotally, the static and residual pressure support flows in the range of 800 gpm and static pressures in the range of 75 psi.

Within the site, fire hydrants will be placed at no more than 500’ in distance to allow for sufficient flow to support fire-fighting pumping equipment.

All fire department improvements will be designed and constructed to NFPA standards and the 2018 International Fire Code.
(vii) Site Ingress and Egress

The subject site is a 8.5 acre parcel located in the geographic and business center of the Town of Fabens, Texas, approximately 31 miles east of downtown El Paso. It sits adjacent to the intersection of the main thoroughfares serving this part of the County of El Paso, namely Fabens Rd. (FM 793). The geographic coordinates are 31° 30' 37.6" N and 106° 08' 41.5" W.

Site ingress and egress is accomplished by utilizing two entrances at opposite ends of the development. The main entrance will be located onto Fabens Rd. The secondary entrance will be onto Citizen Transfer Rd.

By having two entrances the site can better meet the requirements of the County Fire department pertaining to fire truck access and connection to on-site fire hydrants.

The 2018 TxDOT Annual Average Daily Trips (AADT) were 9,049 on Fabens Rd. and 1,937 on Citizen Transfer Road.

Figure 7: Site Ingress and Egress
(viii) Building Codes and Local Design Requirements Impacting the Development

The Town of Fabens (unincorporated) and the County of El Paso do not have ordinances that govern the construction of housing. Notwithstanding, the development will be constructed using the 2015 IBC and the City of El Paso building code. We chose the City of El Paso code as a verifiable governing ordinance from a nearby major metropolitan area. Inspection of the improvements will be conducted by a 3rd party inspection firm or Texas licensed civil engineer or architect.

The County of El Paso requires all storm water be retained on-site. The site plan and preliminary grading and drainage plan show the location of the proposed onsite retention structures.
(D) Property Survey

The survey was conducted during the month of February 2020 by Sub-Land Inc., a registered public land surveying company located in El Paso, Texas. The survey was conducted in accordance with the Texas Society of Professional Surveyors in their Manual of Practice for Land Surveying in Texas (Category 1A – Land Title Survey or 1B-Standard Land Boundary Survey). The site has FEMA Flood Map designation of Flood Hazard Zone A.

Figure 8: Site Survey

The project location is currently located in Flood Zone A (See Attachment A), based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 03008, effective date September 4, 1993). Flood Zone A is defined as areas determined to be within the 100 year flood plain.

ZONE A, AREAS OF POTENTIAL FLOODING 1% ANNUALLY – NO BASE FLOOD ELEVATION GIVEN
(E) Preliminary Site Plan

This site plan materially adheres to all applicable zoning, site development and building code ordinances.

Figure 8: Site Plan
The project location is currently located in Flood Zone A (See Exhibit "A"), based on the FEMA Flood Insurance Rate Map (Community Panel Number 480212 03008, effective date September 4, 1991). Flood Zone A is defined as areas determined to be within the 100 year flood plain.

ZONE A, AREAS OF POTENTIAL FLOODING 1% ANNUALLY – NO BASE FLOOD ELEVATION GIVEN.

Figure 9: Preliminary Site Plan Topographical Information, Drainage and Retention
Narrative of the Project Development Cycle

Based on extensive evaluation of the site, the standard construction means and methods to be utilized, and a single-family detached housing product type, the author (registered professional engineer) considers the site to present relatively low project delivery risk. A brief timing and construction process analysis follows.

Timing of Floodplain Development, Grading and Drainage and Construction Permitting

Floodplain development, grading and drainage plan review is conducted by the County of El Paso within 60-75 days.

No construction permit will be required by the County of El Paso.

Construction is expected to take approximately 570 days (19 months)

The author does not identify significant or atypical conditions that warrant an adverse impact on the project delivery schedule.

Construction Process

The El Paso region has a robust construction industry with numerous specialty contractors to choose from for each trade. Although the market is punctuated by high demand due to an expanding economy, construction labor availability is as good or better than many other Texas markets. Construction costs tend to be lower than other Texas metropolitan areas. According to the El Paso Association of Builders, approximately 3,500 single family new homes are constructed in the metropolitan area annually.

Earthwork and flood mitigation improvements will include raising of the building pads to 1-2” above the calculated Base Flood Elevation levels. This may require significantly more earthwork, grading, and imported fill than a site not in Flood Hazard Zone A. This may add 30-45 days to the overall schedule.

Based on the nature of the underlying soils and in the absence of a complete geotechnical analysis, it has been assumed, for the purpose of this report, the building pads will be over-excavated and built up 36-48” with imported fill in lifts of 6-12” compacted to 90-95% modified proctor based on the sieve analysis of the fill materials.

Concrete slabs will be constructed employing post-tension steel reinforcing. There are many ready-mix concrete suppliers in the area capable of supplying materials for the job.

The project will be designed and constructed as single story, Type-V wood-framed construction typically found in most parts of Texas and the U.S. As the region is not prone to hurricanes or regular snowfall present in parts of the Inter-mountain West, the structural design allows for 2X6” wood studs at 16” O.C. and pre-engineered wood trusses. Composite shingle roofing and built up roofing systems are called out for this project.

Electrical, mechanical and plumbing systems are standard to the normal construction practice in the region. Typical codes used nationally are also standard in El Paso (NEC, UPC, ASHRAE). In addition to many specialty supply houses in El Paso: Home Depot, Lowes, BMC and other large national building material outlets.
The project will utilize 5-6 ton HVAC package units with ground or roof mounted condensers. These are readily available from numerous manufacturers (Goodman, Trane, Carrier) locally.

The project will employ doors, windows hardware and finishes that are commonly available in the market and do not have excessive delivery timeframes.

Based on the foregoing, the author assesses a low risk from a constructability standpoint. Although for the enhanced earthworks required for the project a slightly longer timeframe for construction will be required.

### Table 4: Required Permits, Approvals and Fees

<table>
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<th>Review</th>
<th>Approval</th>
<th>Permit</th>
<th>Fees</th>
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<tr>
<td>Re-zoning</td>
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<td>Subdivision Improvement Plans</td>
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<tr>
<td>Water and Wastewater</td>
<td>EPCWCID#4</td>
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<tr>
<td>Access Locations</td>
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### Table 5: Activities and Timeline

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<th>Activity</th>
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<td>Subdivision Plan Approval</td>
<td>July 2020</td>
<td>October 2020</td>
</tr>
<tr>
<td>Construction</td>
<td>December 2020</td>
<td>July 2022</td>
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</table>

(G) Conclusions
The addition of 40 affordable units of rental housing stock to the community of Fabens will be quite beneficial. The impact of additional traffic generated by the Development should have a negligible effect on the large existing AADT of Fabens Rd. and Citizens Transfer Rd.

Given the standard Type V construction of single-story, single-family housing does not present significant risk to timely completion of the project.

Utility availability is good with no identified concerns or capacity issues.

FEMA Floodplain designation of Flood Hazard A for site represents a challenge, however, schedules and budgets have been adjusted to comprehend the additional time and cost for earthworks, grading and imported fill and flood mitigation measures. The site has sufficient land area to support the required drainage structures and capture all site runoff.

On the basis of the due diligence conducted and the supporting documentation collected, Metropolitan Capital Partners LLC recommends the site for construction of 40 Low Income Housing Tax Credit units thereupon.

Rudolf Montiel, PE
Texas Professional Engineering Registration # 79064
Custom Soil Resource Report for
El Paso County, Texas (Main Part)
Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require
alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.
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  BPC—Bluepoint association, rolling................................................................. 13
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil
scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.
Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Special Line Features
- Special Line Features

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:31,700.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: [Link]
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County, Texas (Main Part)
Survey Area Data: Version 17, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 30, 2013—Dec 12, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPC</td>
<td>Bluepoint association, rolling</td>
<td>14.8</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>14.8</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.
An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a soil series. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A complex consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.
El Paso County, Texas (Main Part)

BPC—Bluepoint association, rolling

Map Unit Setting
- National map unit symbol: rtwg
- Elevation: 1,400 to 5,200 feet
- Mean annual precipitation: 3 to 10 inches
- Mean annual air temperature: 55 to 66 degrees F
- Frost-free period: 180 to 300 days
- Farmland classification: Not prime farmland

Map Unit Composition
- Bluepoint and similar soils: 100 percent
- Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bluepoint

Setting
- Landform: Hillsides
- Landform position (two-dimensional): Backslope
- Landform position (three-dimensional): Side slope
- Down-slope shape: Linear
- Across-slope shape: Convex
- Parent material: Wind-modified sandy alluvium

Typical profile
- H1 - 0 to 6 inches: loamy fine sand
- H2 - 6 to 12 inches: fine sand
- H3 - 12 to 60 inches: stratified sand to loamy fine sand to very fine sandy loam

Properties and qualities
- Slope: 5 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Gypsum, maximum in profile: 1 percent
- Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 12.0
- Available water storage in profile: Low (about 5.7 inches)

Interpretive groups
- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7s
- Hydrologic Soil Group: A
- Ecological site: Sand Hills, Desert Shrub (R042XB270TX)
- Hydric soil rating: No
References


Custom Soil Resource Report

