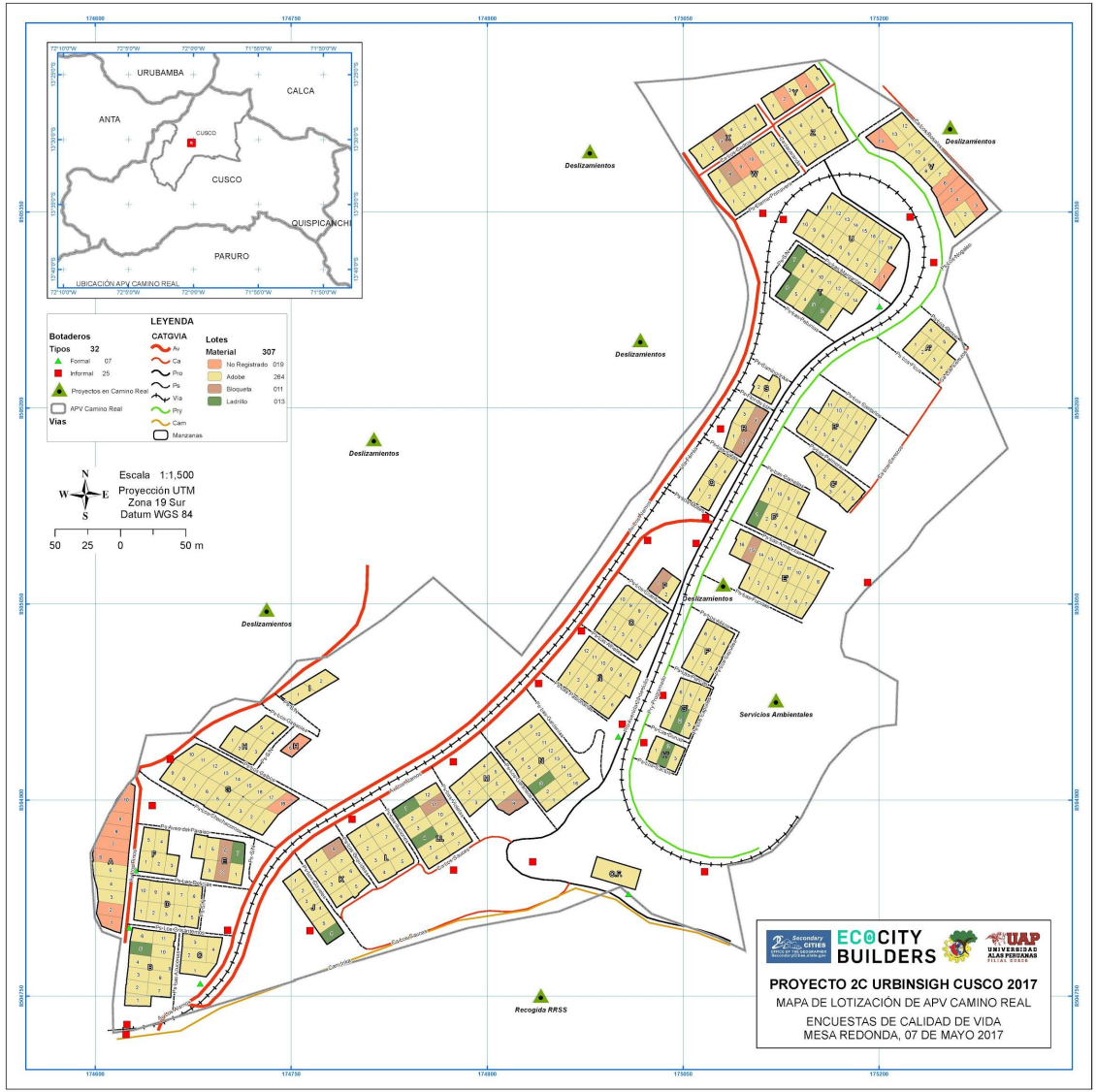
Cusco

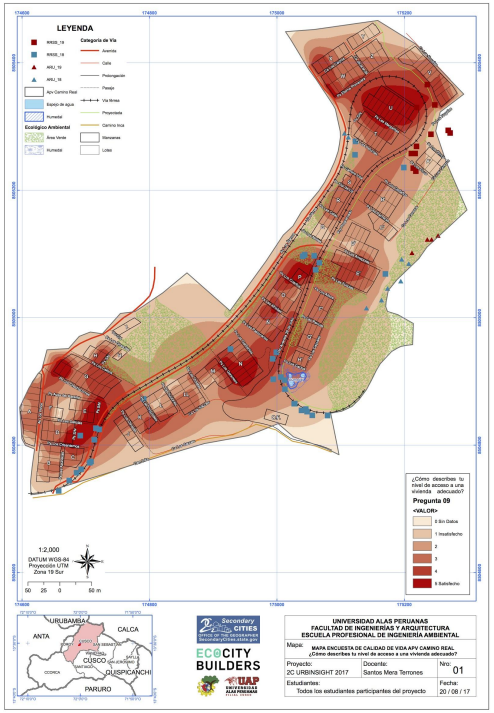
Secondary Cities Project Outcomes Map Book

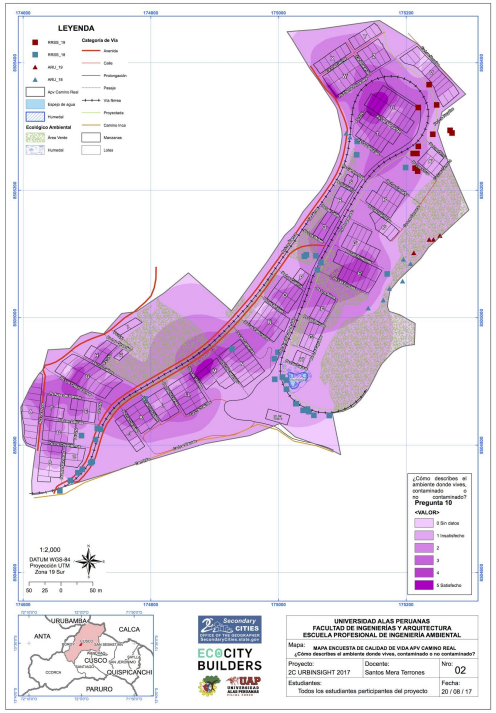
Phase II - 2017

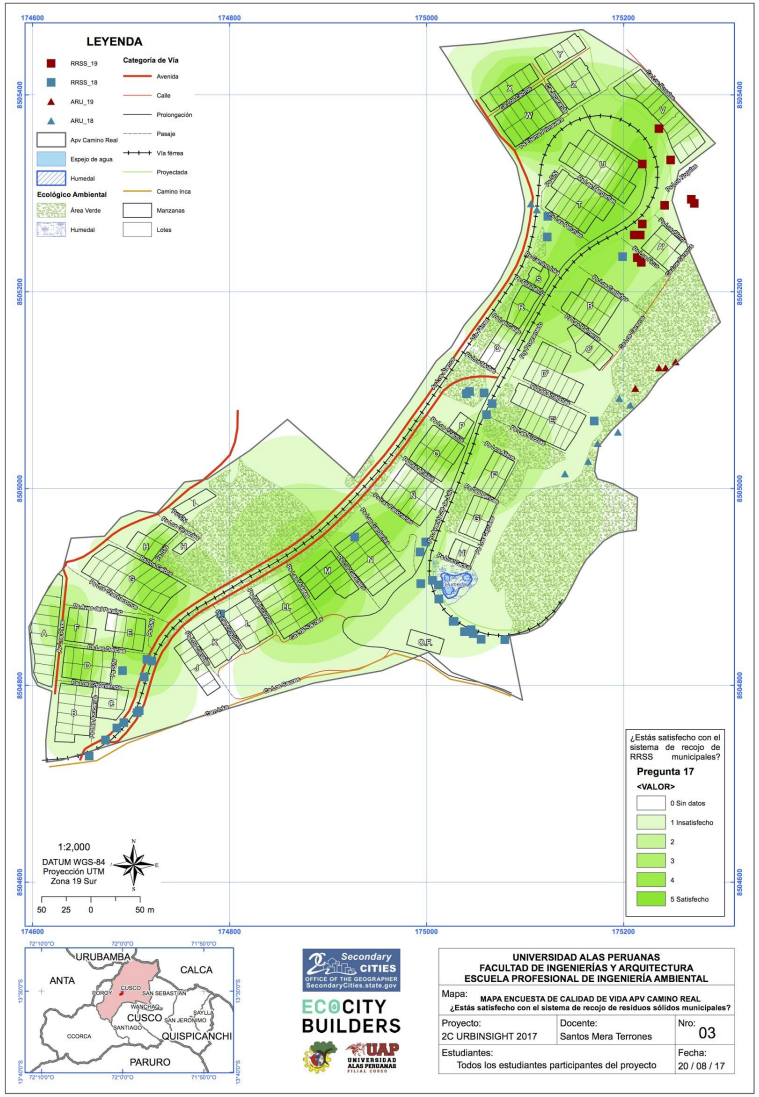
2C teamed with their on the ground implementer, Ecocity Builders (ECB); Cusco's land-use planning department, the Ordenamiento Territorial (OT); the Environmental Engineering Department at University of Alas Peruanas (UAP); and two local community partners: Ingenio Verde (a non-profit organization that was started out of 2C Phase I in 2016) and a very proactive Association for Pro-coexistence, APV neighborhood center in the Camino Real community. Together these parties worked under the 2C project to collect, document and map important information about the city of Cusco. ECB, the OT, UAP and the community partners worked in two separate communities this year. 2C Course participants worked in the Camino Real neighborhood to collect information around material flows through the community and waste collection from the neighborhood. A small team of Interns, returning alumni from Phase I continued to work in the historic neighborhood of San Pedro as well as added the other three historic neighborhoods: San Blas, San Cristobal and Santa Ana. The Interns researched compost modules and co-designed modules that were piloted throughout the four communities in the homes of volunteer neighbors. The interns conducted an impact analysis and developed a report to communicate their designs and findings with other community members and the local government. The following maps and diagrams were created as a result of this 2C project implementation. These maps can be seen, used for analysis, or downloaded in shapefile format on the Geoexplorar developed by ECB for the local 2C Cusco team.

This map was developed as a first GIS exercise in the 2C Course this year. The 2C Course participants worked with Camino Real community leader, Guido Ugarte to geospatially process and update the maps that previously existed for Camino Real and were only hand drawn. The map outlines the parcels and building materials for each lot. The City of Cusco does not have a catastro map. The OT has been puzzle piecing together parcel maps like this one from different initiatives that span over 25 years to build this important resource for their city. This map will contribute to this process.



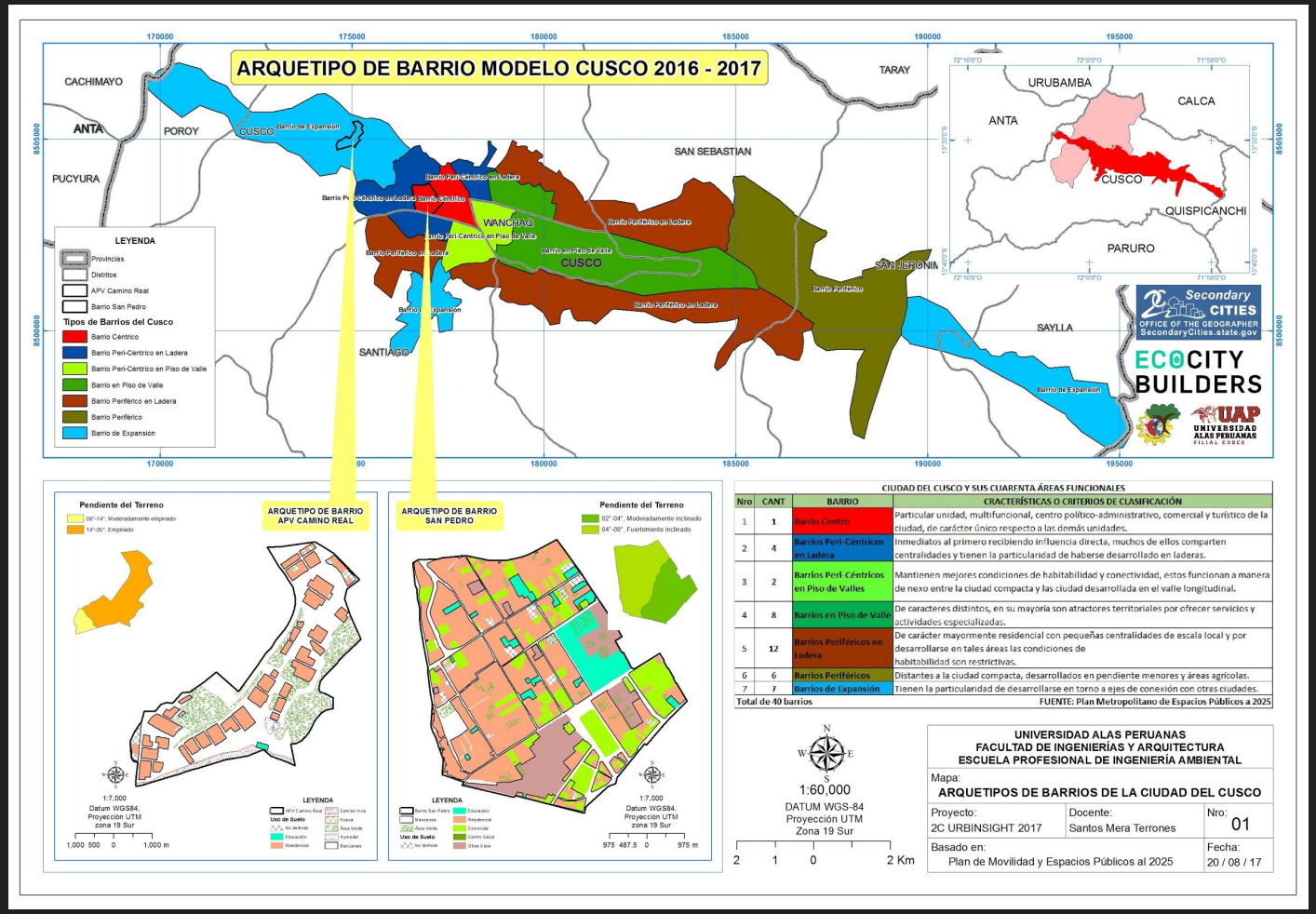




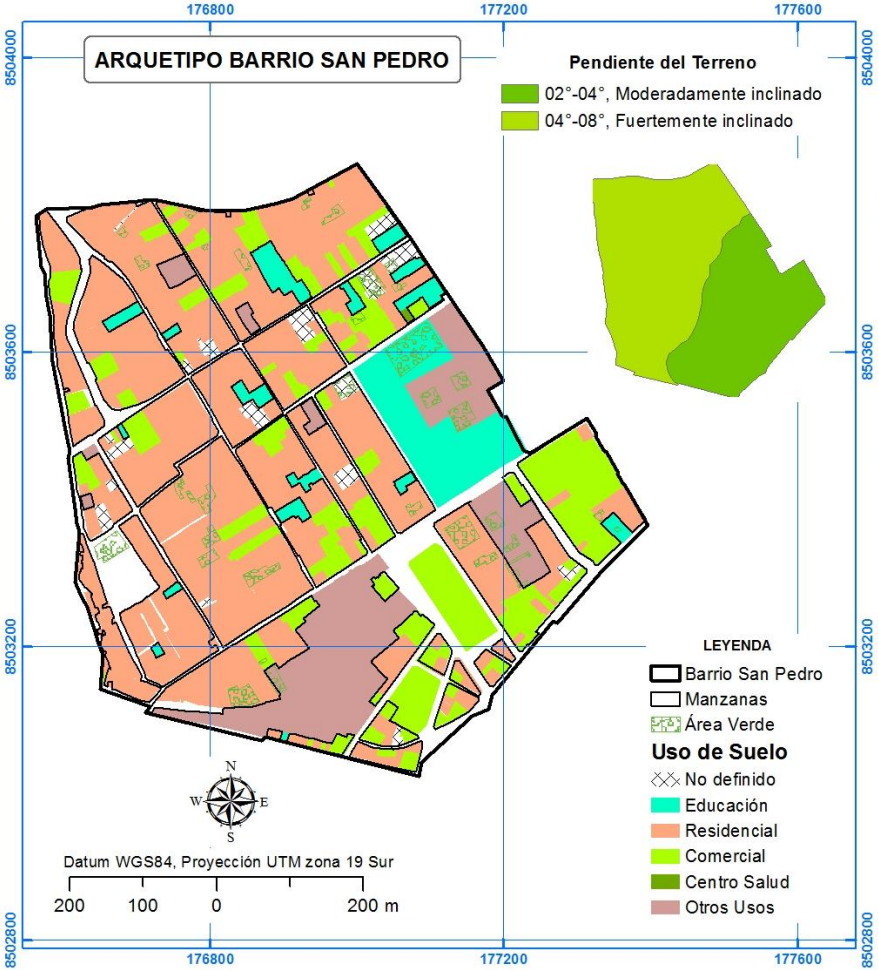


These maps are visualizations of select questions from the quality of life survey. This exercise helps to visually understand community members' perspectives about their quality of life in a geospatial way. These layers can be cross referenced with additional information to geospatially investigate possible correlations.

This is the ECB neighborhood archetype map for Cusco. It shows the San Pedro and Camino Real archetypes in elaboration. ECB, OT and UAP have made initial generalizations and assumptions to develop neighborhood archetype criteria that are relevant to Cusco and then to classify the 40 functional areas considered in the 2025 Plan of Mobility and Public Spaces proposed by the Plan of the Ordenamiento Territorial of Cusco. In this map you can see the coincidence between what is considered by the Provincial Municipality of Cusco and the 2C team to carry out the characterization of neighborhoods or determination of neighborhood archetypes. Based on these initial assumptions, Camino Real is in the classification 'Neighborhood in Expansion' (color: light blue) and San Pedro is classifies as a Central Neighborhood" (color: red). All of these assumptions are currently under review by the 2C data partners and other representatives from the municipality and will be revised with their input.



This is a detailed view of the historic neighborhood archetype elaborated in the Historic District of San Pedro. The map and table of characteristics show aspects or criteria considered to carry out the neighborhood characterization



ASPECTOS O CRITERIOS CONSIDERADOS EN LA GENERACIÓN DEL ARQUETIPO DEL BARRIO HISTÓRICO SAN PEDRO	
NÚMERO LOTES	646
NIVELES DE EDIFICACIÓN	1-2 pisos 85% 0, 3-5 pisos 15%
USO RESIDENCIAL	73%
USO COMERCIAL	19%
MATERIAL DE CONSTRUCCIÓN	Adobe 76% Mat2 15% 0,3,5,6 09%
ÁREAS VERDES	3.5%, privadas
INSTITUCIONES EDUCATIVAS	19
HOSPITALES	1
ÁREAS DEPORTIVAS	0
OTROS USOS	14
SERVICIOS BÁSICOS	96% LAD
INCLINACIÓN TERRENO	02°-04° = Moderadamente Inclinado. 04°-08° = Fuertemente Inclinado.
PELIGRO DE REMOCIÓN	Medio a Bajo.
VÍAS	En su mayoría asfaltadas, de dos carriles, con veredas y con acceso a varias líneas de transporte público.
POBLACIÓN FLOTANTE	Por las actividades económicas como Turismo, Mercado y Diversión.
HISTÓRICO CULTURAL	Iglesias, Colegio Embremático y Museos.

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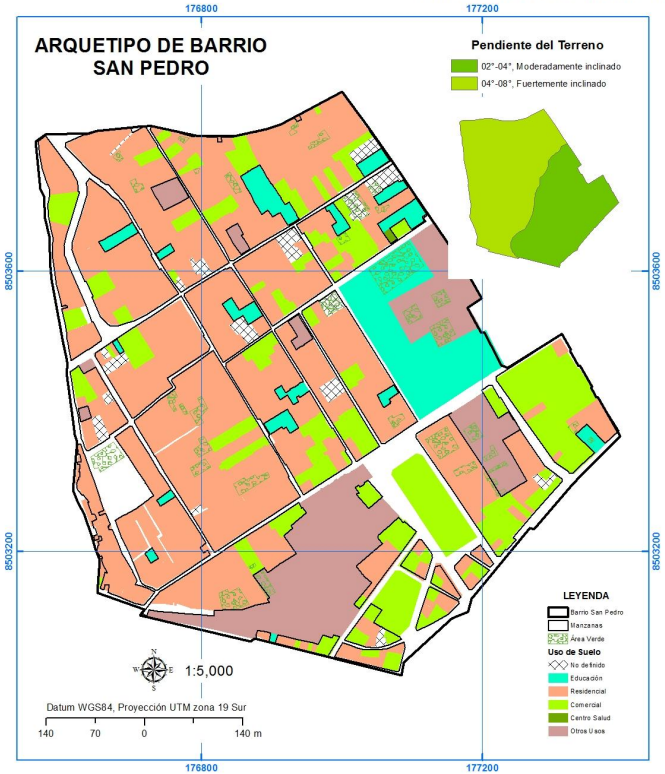
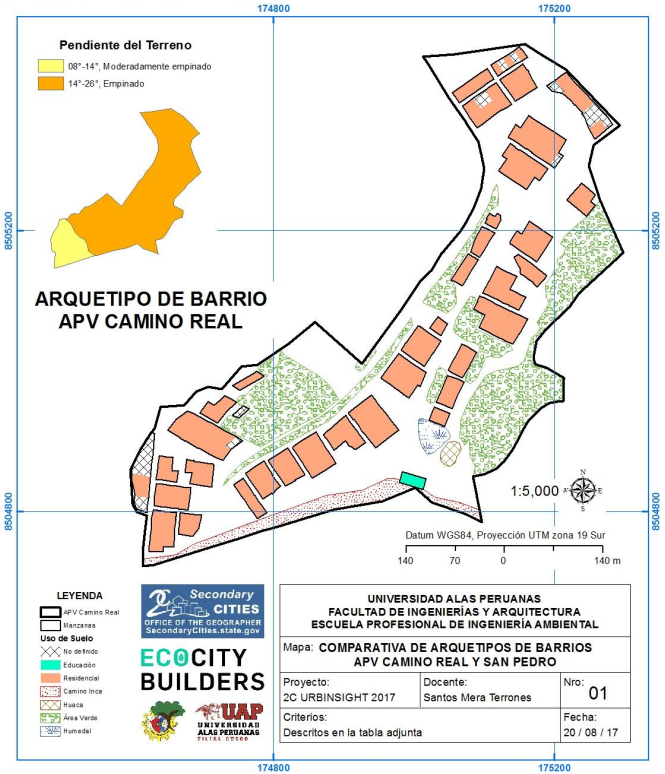
Mapa: ARQUETIPO BARRIO HISTÓRICO SAN PEDRO

Proyecto:	Docente:	Nro:
2C URBINSIGHT 2017	Santos Mera Terrones	01
Criterios: Descritos en la tabla adjunta		Fecha: 20 / 08 / 17

These detailed archetype maps are helpful to see side by side as they represent two archetype groups: Arch. I: Historical and Arch. II Unplanned, Modern. Criteria such as green areas, number of lots, density of population, land use distribution (percentage commercial/residential/educational), access to city resources (such as health centers, water, waste collection) are clearly distributed very differently between the 2C focal neighborhoods.

ARQUETIPO DE BARRIO MODELO CUSCO 2016 - 2017

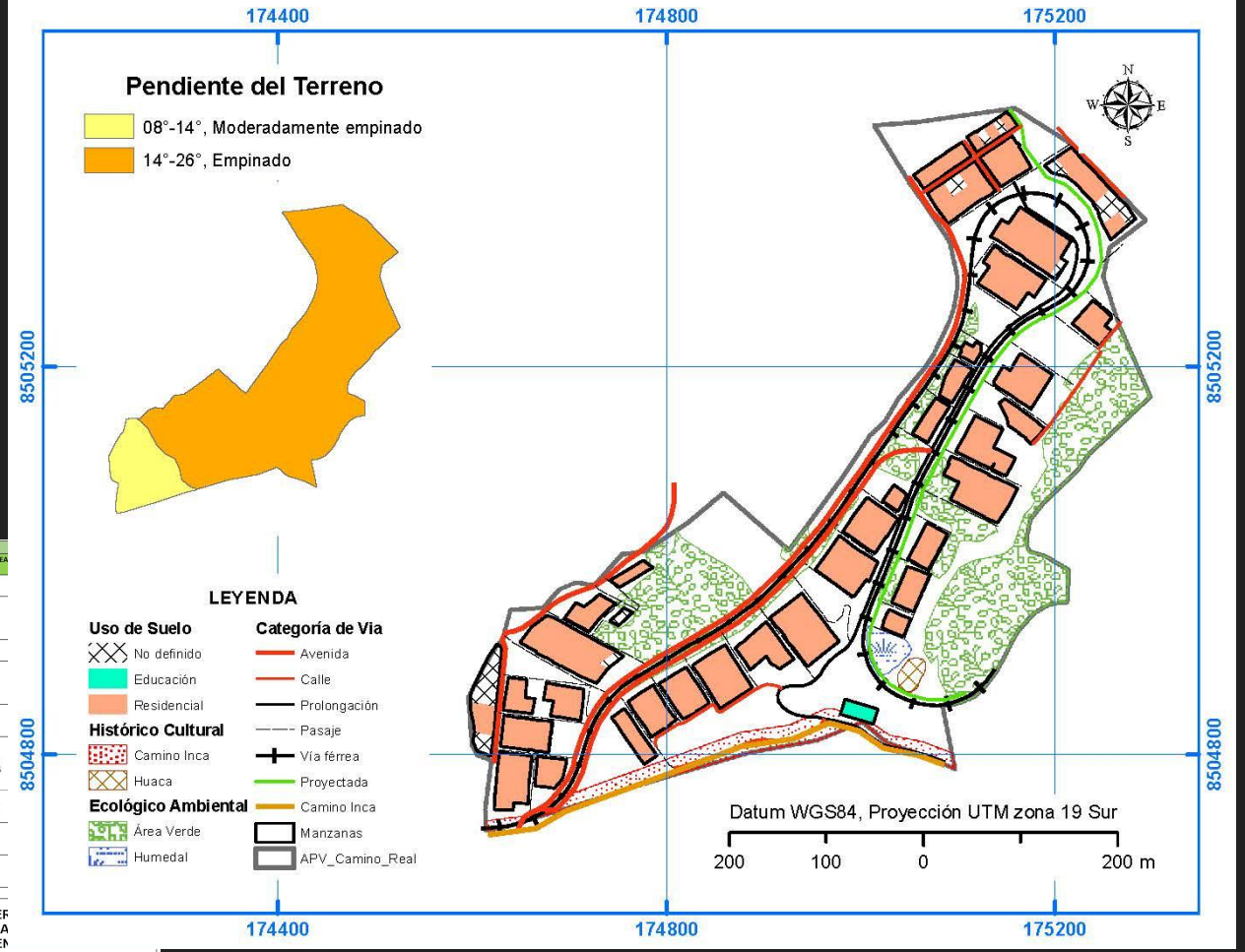




ARQUETIPOS DE BARRIOS		ASPECTOS O CRITERIOS CONSIDERADOS EN LA GENERACIÓN DEL ARQUETIPOS DE APV CAMINO REAL Y BARRIO HISTÓRICO SAN PEDRO														
		NÚMERO LOTES	NIVELES DE EDIFICACIÓN	USO RESIDENCIAL	USO COMERCIAL	MATERIAL DE CONSTRUCCIÓN	ÁREAS VERDES	INST EDUCATIVAS	HOSPITALES	ÁREAS DEPORT	OTROS USOS	SERVICIOS BÁSICOS	INCLINACIÓN TERRENO	PELIGRO REMOCIÓN	VÍAS	POBLACIÓN FLOTANTE	HISTÓRICO CULTURAL
BARRIOS	CAMINO REAL	307	1-2 pisos 89% 3-4 pisos 11%	93%	0	Adobe 86%	21% publicas y privadas	0	0	1	0	93% LAD	08°-14° = Moderadamente Empinado 14°-26° = Empinado	Medio, Alto y Muy Alto	En su mayoría peatonales, sin asfaltar, con acceso directo a una línea de transporte público.	No tiene	Huaca y Camino Inca
	SAN PEDRO	646	1-2 pisos 85% 0, 3-5 pisos 15%	73%	19%	Adobe 76% Mat2 15% 0,3,5,6 09%	3.5%, privadas	19	1	0	14	96% LAD	02°-04° = Moderadamente Inclinado 04°-08° = Fuertemente Inclinado	Medio a Bajo	En su mayoría asfaltadas, de dos carriles, con veredas y con acceso a varias líneas de transporte público.	Actividades de Turismo, Mercado y Diversión	Iglesias, Colegio Embremático y Museos

This map outlines the factors that designate Camino Real as a Type II Neighborhood Archetype. The table below describes the criteria being considered

ARQUETIPO DE BARRIO APV CAMINO REAL



ASPECTOS O CRITERIOS CONSIDERADOS EN LA GENERACIÓN DEL ARQUETIPO DE APV CAMINO REAL

N°	ASPECTOS O CRITERIOS	DESCRIPCIÓN	ESCALAS O CATEGORÍAS ENCONTRADAS	% DEL ÁREA TOTAL
1	INCLINACIÓN O PENDIENTE DEL SUELO	Según los grados de inclinación, pendiente o la clasificación que se tenga por parte de la Municipalidad Provincial del Cusco	08°-14° = Moderadamente Empinado 14°-26° = Empinado	13 % 87 %
2	TIPO DE VIAS SEGÚN SU FUNCIÓN	Si son Avenidas o prolongaciones permiten el acceso a transporte público, si son pasajes o calles o estan en proyecto son más de tipo peatonal. No se considera la vía ferrea ni Camino Inca por no ser accesibles	Avenidas y Prolongaciones de avenidas Calles, Pasajes y vias proyectadas Vía Férrea y camino Inca	29% 47 % 24 %
3	ESTRATO SOCIAL	Por ser una zona de expansión y por los datos recolectados en las encuestas del proyecto se define un solo estrato social	Bajo	100%
4	MATERIAL DE CONSTRUCCIÓN DE LAS VIVIENDAS	Qué tipo de material se ha utilizado para la construcción de las viviendas, si es adobe, ladrillo, etc.	Adobe Bloqueta Ladrillo No registrado	86% 04 % 04 % 06 %
5	DENSIDAD POBLACIONAL POR NÚMERO DE PISOS	La determinaremos por la cantidad de pisos que tiene la vivienda, en vista que es una zona de expansión urbana y por las caracteristicas topográficas, las construccuones no exeden los 3 pisossegún los registros digitales.	1 - 2 Pisos 3 - 4 Pisos	89 % 11 %
6	ECOLÓGICO AMBIENTAL	Si existe o no la presencia de Área verde (Jardin Botánico), Humedal (Afloramiento natural de agua) u otra Área con Valor Ecológico Ambiental.	Humedal Área Verde	0.70 % 20.97 %
7	HISTÓRICO CULTURAL	Si existe o no la presencia de restos arqueológicos dentro del barrio, como Huacas, Camino Inca, Muros Incas u otro vestigio Histórico Cultural en el Barrio.	Huaca Camino Inca	0.34 % 3.64 %
8	USO DE SUELO	Si es vivienda, comercio u otro uso	Vivienda Comercio, educación u otros	93 % 07 %
9	ESTADO DE CONSERVACIÓN	Qué tan conservadas están las viviendas, si están en Bueno, Regular o Mal Estado	Regular Bueno y Malo	73 % 27 %

Arquetipo Camino Real

- Tiene la presencia de restos arqueológicos y áreas verdes, por lo que se le considera de gran valor ecológico cultural.
- De estrato económico bajo, ubicado en zona de expansión, en terreno empinado, con construcciones en su mayoría de adobe y hechas para vivienda de 1 a 2 pisos de altura.
- Vías en su mayoría de tipo peatonal, con acceso directo a una línea de transporte público e indirecto a otras líneas a distancias desde 20 m y hasta de 600 m hacia al centro y sur de la ciudad.

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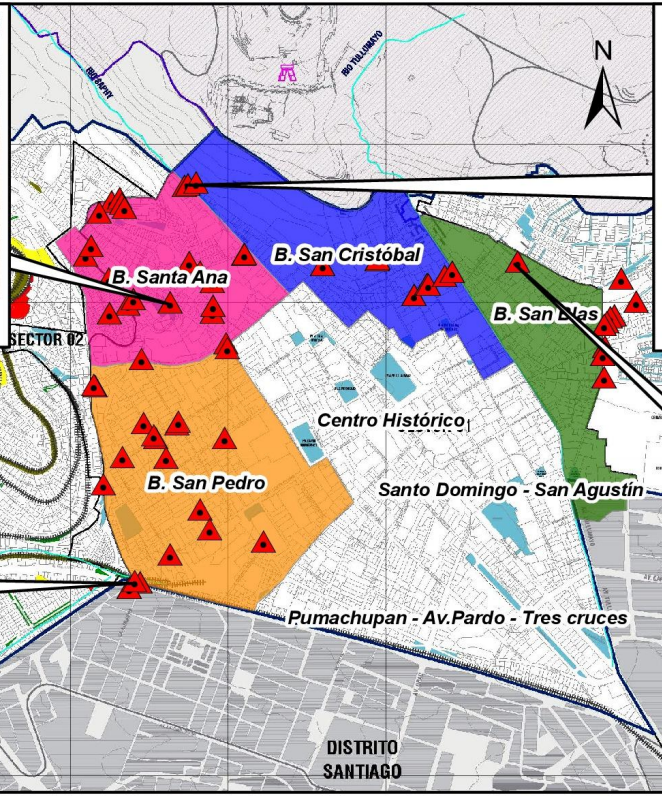
Mapa: ARQUETIPO BARRIO APV CAMINO REAL		
Proyecto: 2C URBINSIGHT 2017	Docente: Santos Mera Terrones	Nro: 01
Criterios: Descritos en la tabla adjunta		Fecha: 20 / 08 / 17

This map tells the story of the Phase I 2C project findings and the development of the Phase II implementation of a community compost program in the historic communities of Cusco. 2C Interns walked the streets of the four historic neighborhoods and consulted with community members to develop this map which outlines the four historic neighborhoods and identifies informal, temporary dumping sites throughout these four communities. As can be seen in the photo documentation here, the garbage piles high over time, attracts dogs, and spills into waterways.

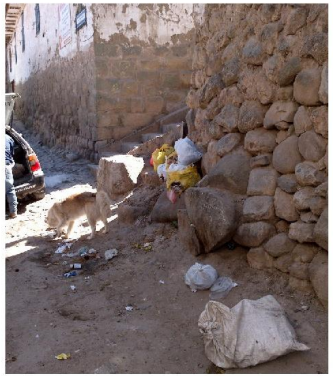
"BOTADEROS EN LOS BARRIOS TRADICIONALES DEL CUSCO"

Botadero temporal en el Barrio de Santa Ana.



Botadero temporal en el Barrio de San Cristóbal.

Botadero temporal en el Barrio de San Pedro.



Botadero temporal en el Barrio de San Blas.

LEYENDA

- 60 Botaderos temporales
- B. San Blas
- B. San Cristóbal
- B. San Pedro
- B. San Pedro
- B. Santa Ana

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PROYECTO PILOTO DE COMPOSTAJE EN LOS BARRIOS TRADICIONALES DE SANTA ANA, SAN BLAS, SAN CRISTÓBAL, SAN PEDRO.

MAPA: BOTADEROS EN LOS BARRIOS TRADICIONALES DEL CUSCO		Escala: 1:17,000
ELABORADO POR: SAMUEL VALENCIA CCAYO	FUENTE: PROPIA, ALLPAY CUSCO.	N° B_H_01

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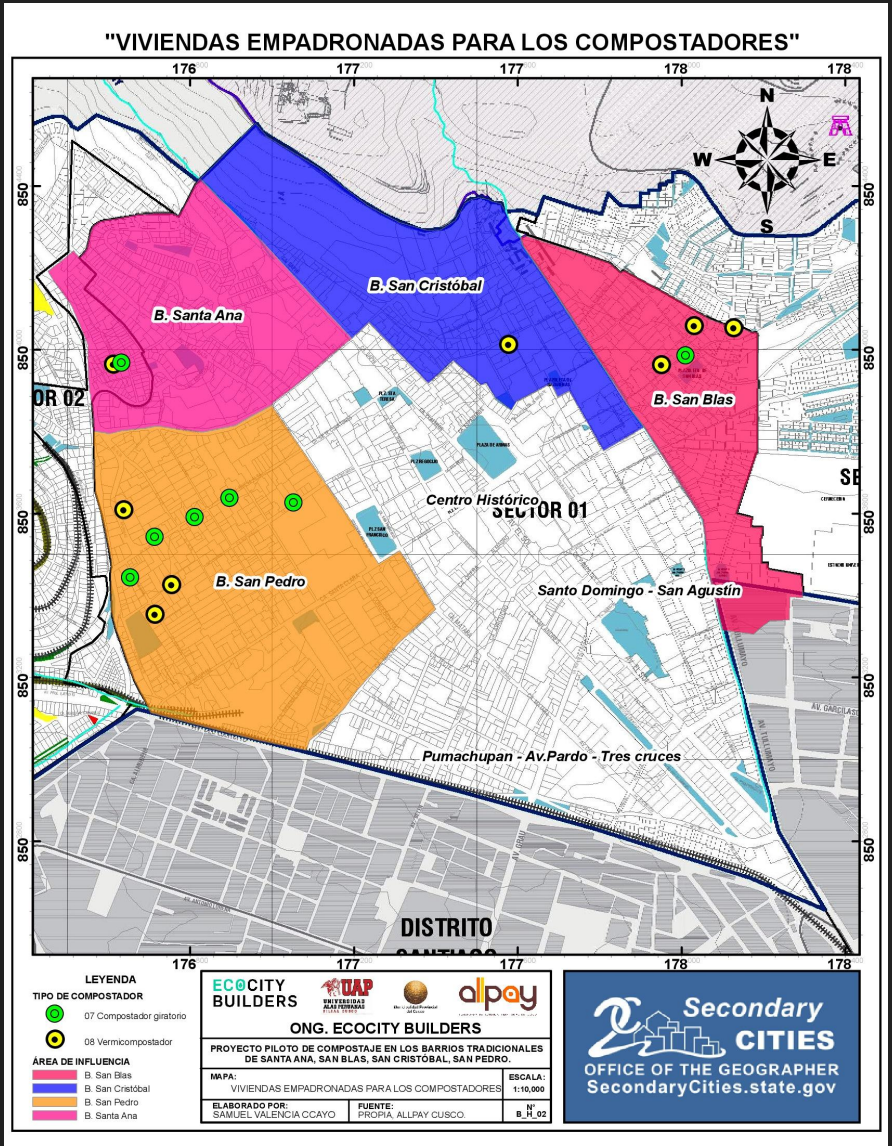
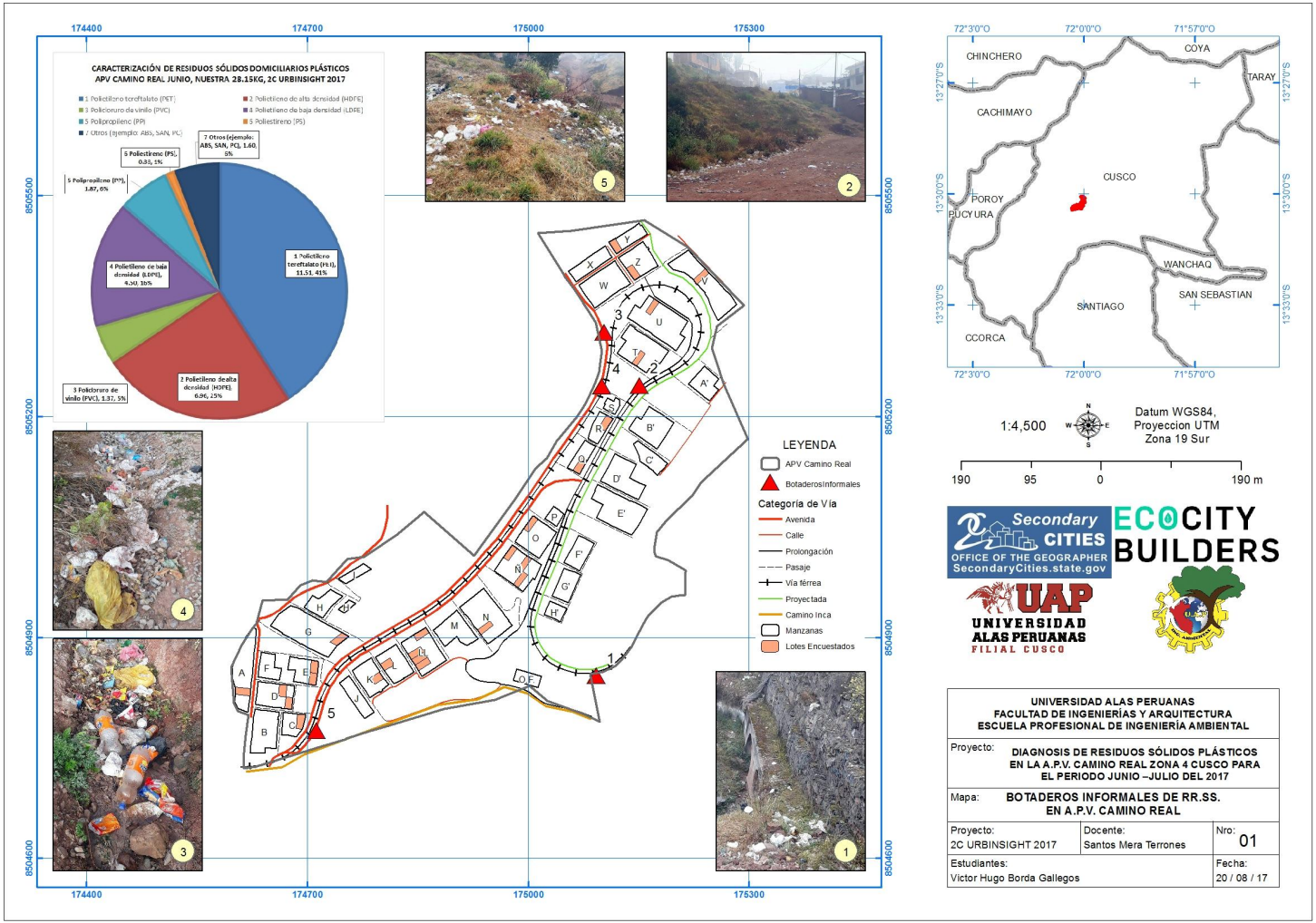
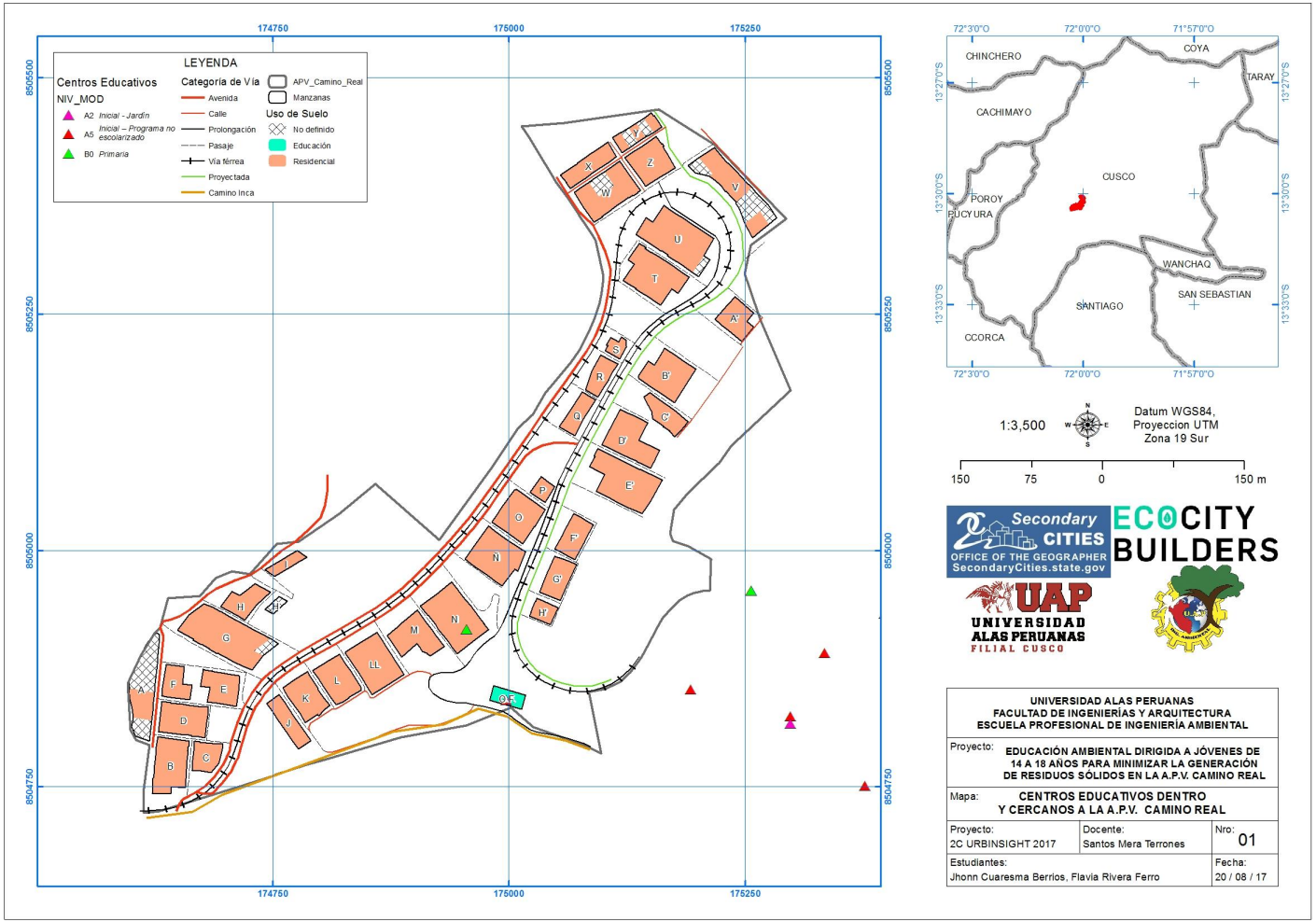


This map documents the location of homes throughout the historic neighborhoods where the 2C Interns built and piloted their compost designs. The two different color dots indicate the type of model that the household has, either vermi-compost or the rotating model.. The interns worked with community leaders to solicit equal participation from each neighborhood, but found the most responsive neighborhoods to be San Pedro and San Blas. This is the 2C local team's second year working in San Pedro and the community contacts and trust have been established there. As a final event, the students presented their findings to over 60 community members who are interested in building a module in their own homes. The interns had developed a pamphlet with module construction instructions as well as a compost guide that they specifically created for Cusco climate and building designs. These materials are available to community members so that they can go on to spread the compost program throughout their community through peer to peer urbanism. The idea is that those who were taught through this phase can teach a new group to build their own modules.

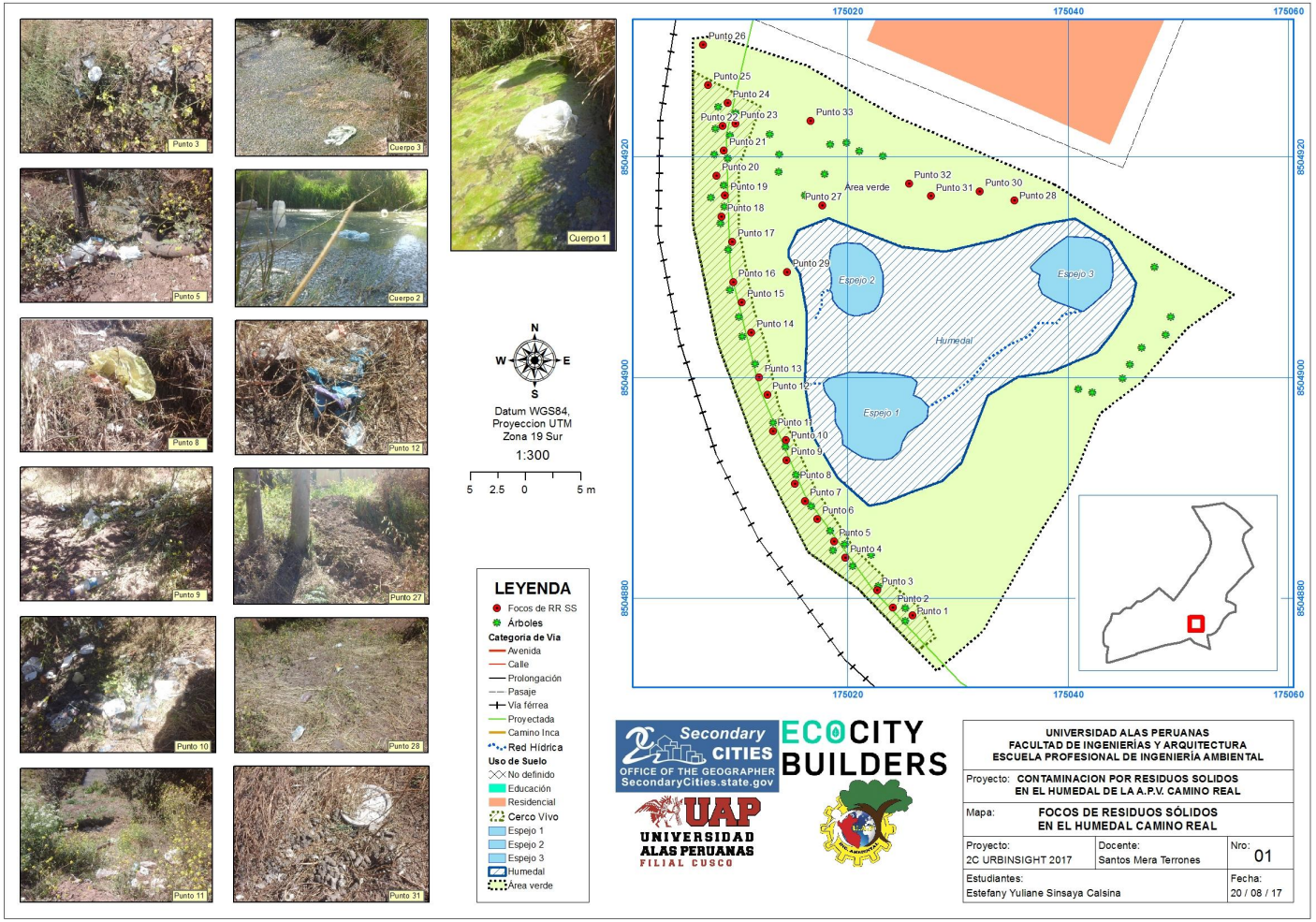
This map identifies informal garbage dump sites throughout Camino Real. The photo documentation provides a visual for what these sites look like. This research group was investigating different types of plastics that are accumulating at these sites. They inluded a pie chart analysis of the waste characterization that includes details about the specifi types of plastic waste being generated by Camino Real residents.



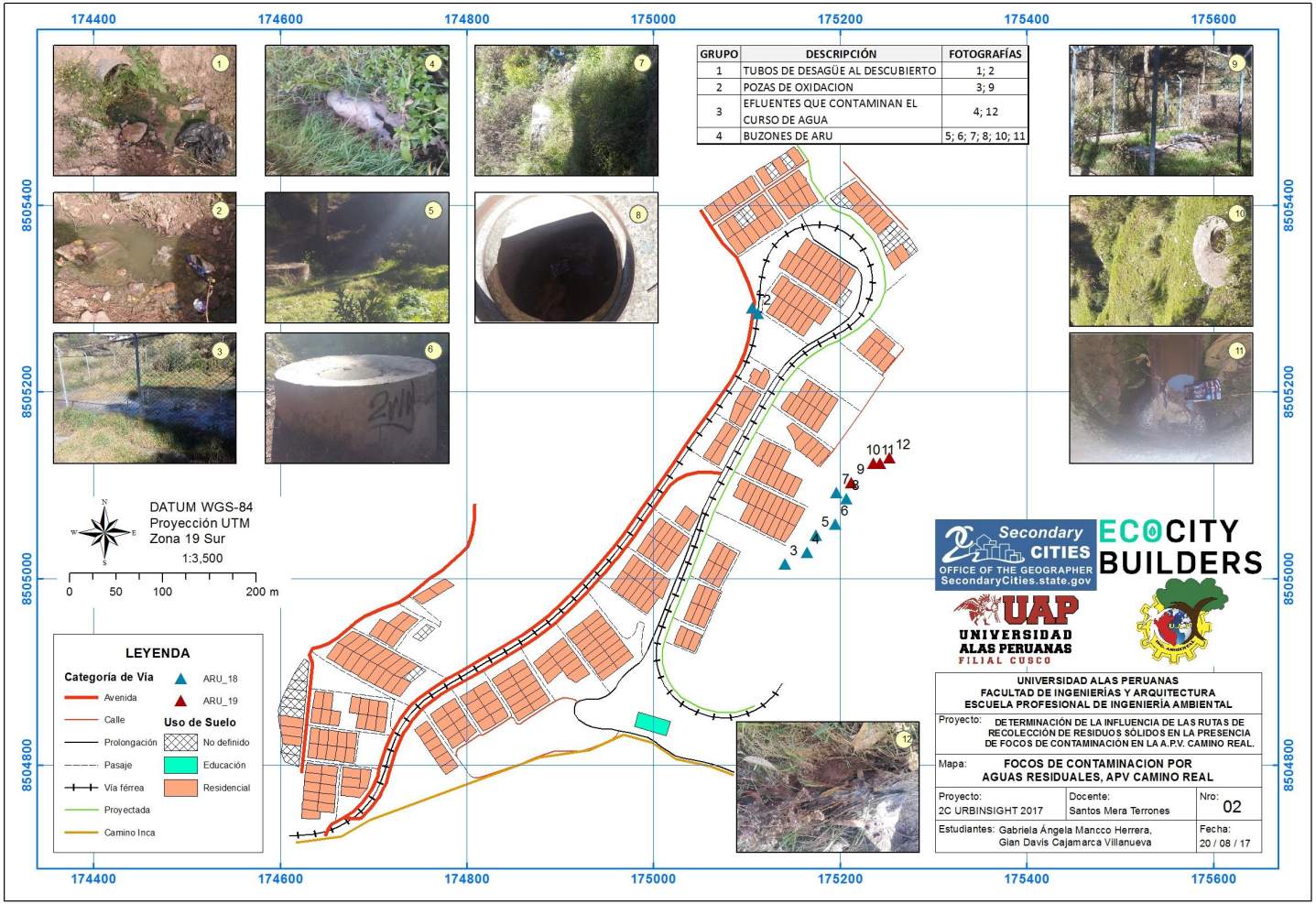
This map identifies educational centers and potential educational centers throughout Camino Real.



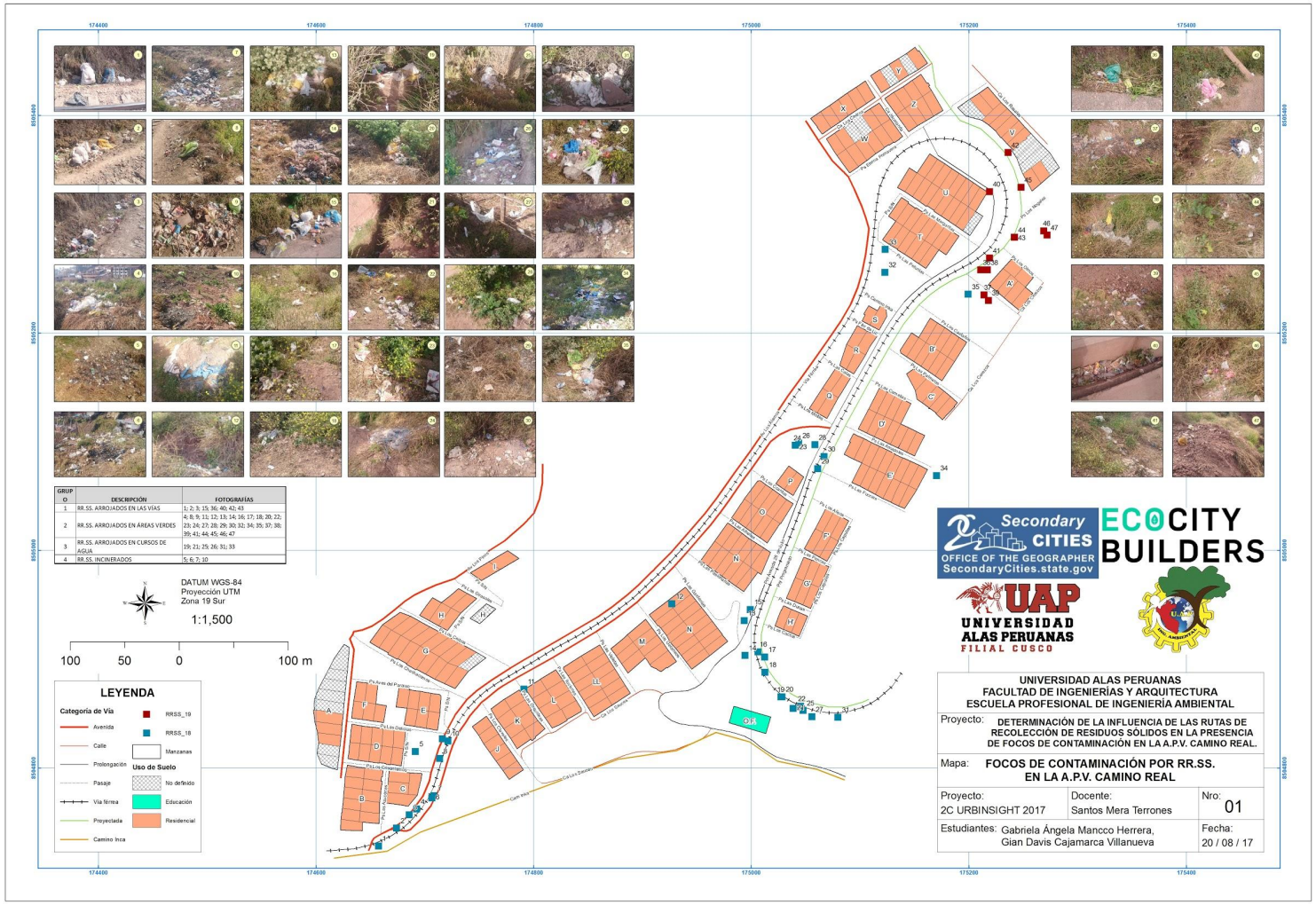
This map identifies important characteristics of the watershed within Camino Real. It outlines the wetland region of Camino Real and the three fresh springs. In the photo documentation of these sites, it is clear to see how improper waste disposal is contaminating the valuable wetland features. Residents reported that just 10 years ago, they were able to drink from the three springs. Now they cannot. This is partially due to agricultural practices and partially due to waste contamination.



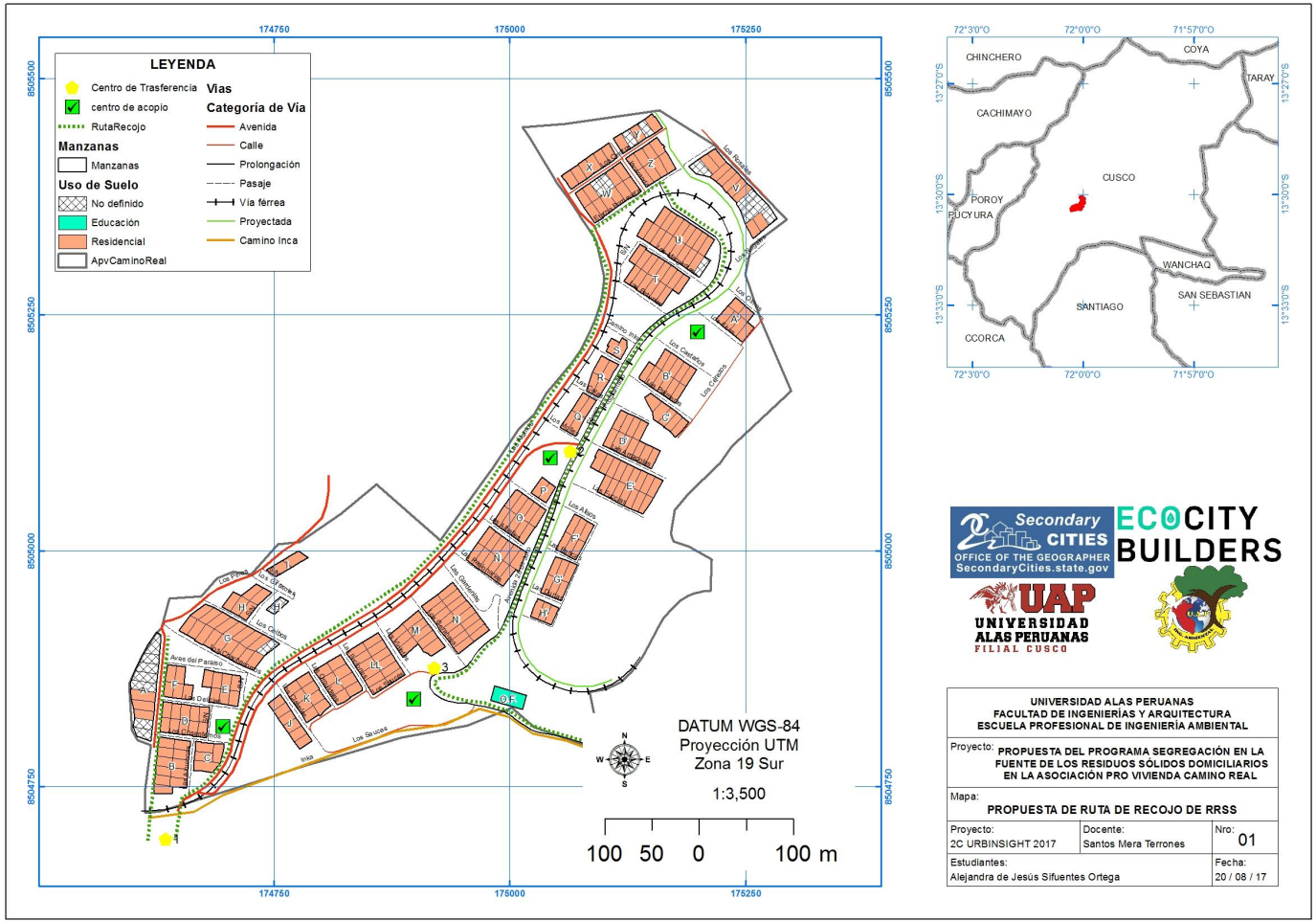
This map and the accompanying photo documentation identify sources of sewage pollution to waterways throughout Camino Real. The photos correlate with points on the map. This is a great resource for the local government to understand vulnerabilities that need improvement in this unplanned but fast growing neighborhood and for community members who want to solicit clean up support from the local government.



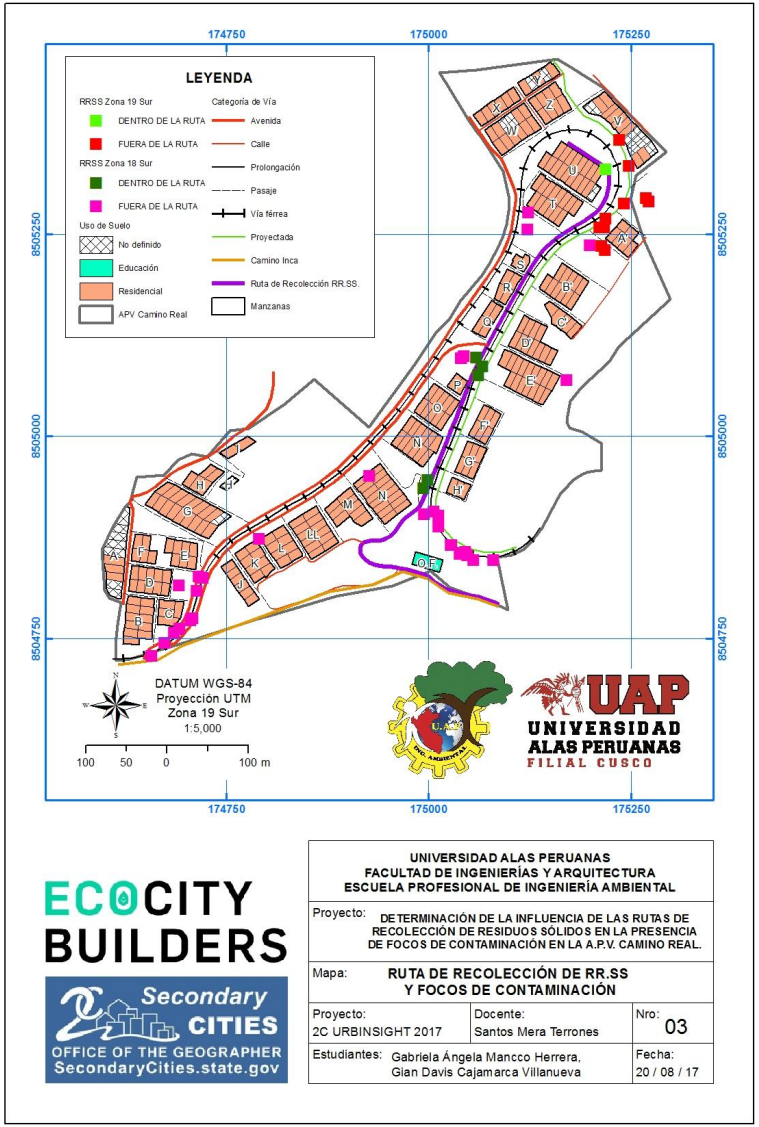
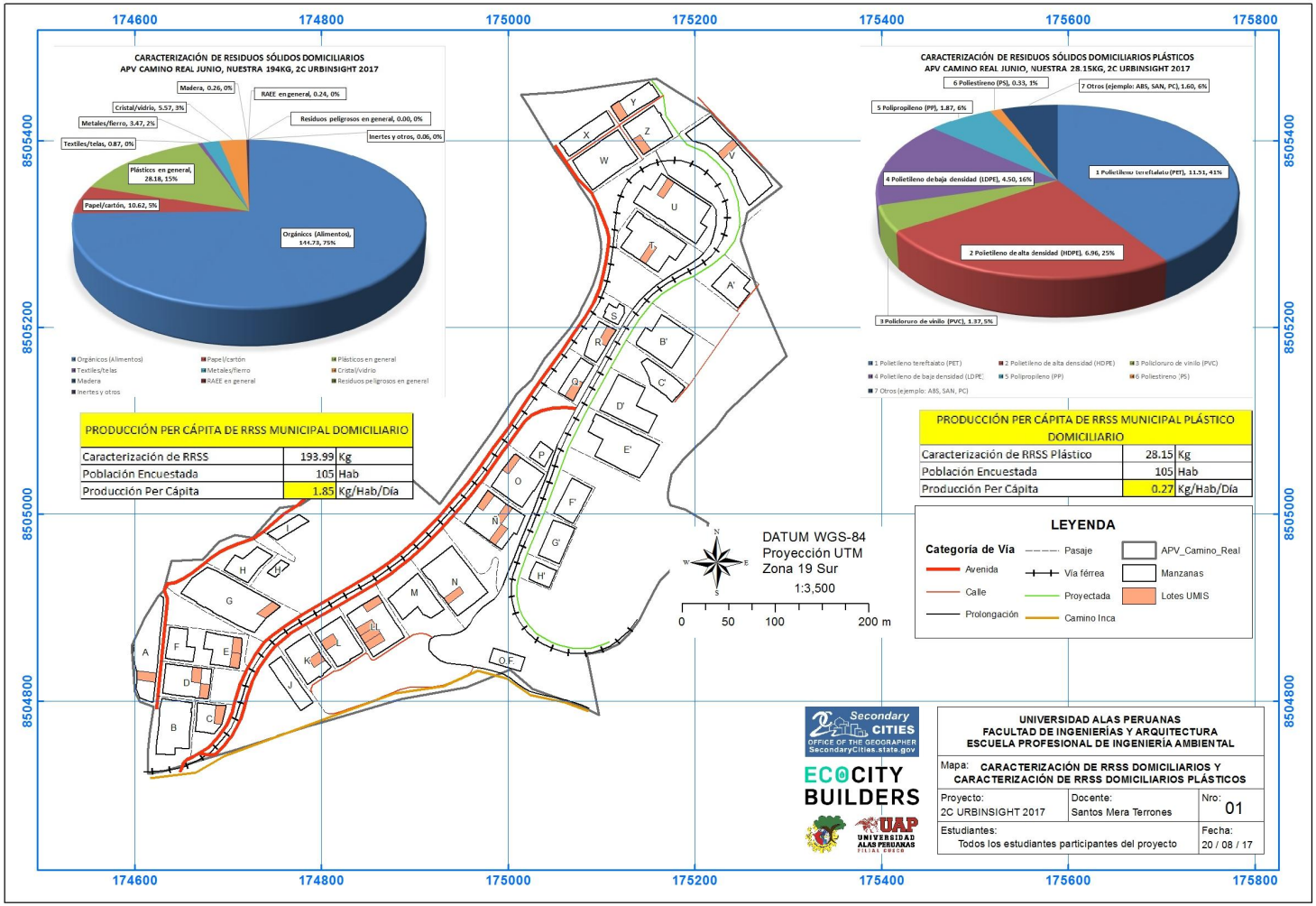
This map and the accompanying photo documentation identify sources of material waste pollution to waterways throughout Camino Real. The photos correlate with points on the map



This map communicated a proposed waste collection route through the Camino Real neighborhood and includes four designated dumpster sites and three transfer stations.



This map identifies contamination sources throughout the Camino Real neighborhood, and analyzes them in relation to the proposed waste collection route outlined on the previous map.



This map indicates the households that were audited by the 2C Course participants. The pie charts describe the average demand or material waste production in Camino Real. Approximately 10% of all households in the neighborhood were audited. 2C students used the map from the previous slide to ensure that they audited buildings of each material type.