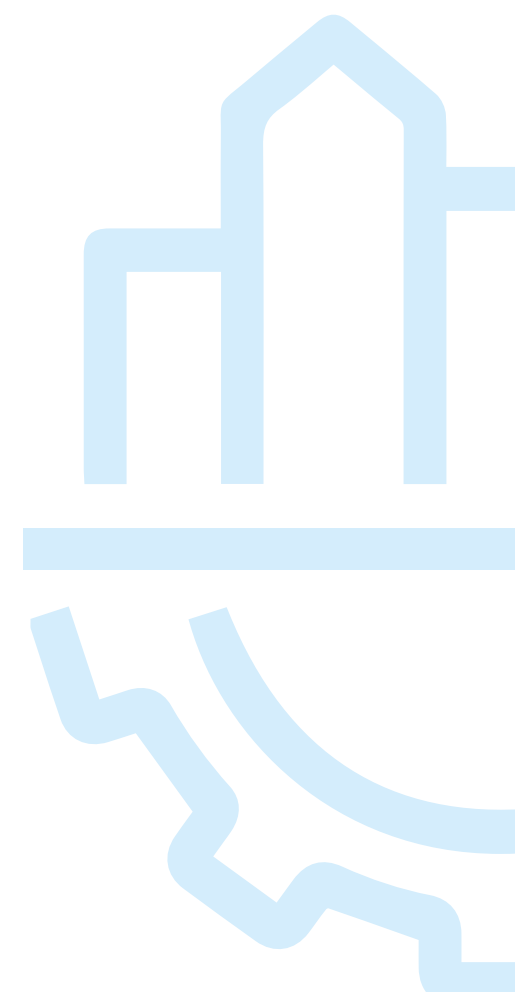




INFRA- STRUCT- URES DIVISION

**Sustainable
construction**



Broadly speaking, our objectives would be to increase the volume of work and the consequent growth;

to undertake works of greater magnitude and importance, to diversify the types of works we execute, and to become established in the area of buildings

Adding value to the company by meeting the construction needs of both the client and the group companies sustainably is part of our raison d'être.

The maintenance, construction and the overhauling of supply and sewer networks were all undertaking.

Also urban development projects and the modernisation of irrigation networks and buildings from the residential, institutional and industrial point of view, and actions in the field of mining.

> Hydraulic infrastructures

- » Renewal of supply and sewerage networks
- » Overhaul of pipelines
- » Comprehensive water cycle
- » Breakdown repairs and network maintenance
- » Renewal of meters and installation of new service connections
- » Water treatment
- » Irrigation
- » Desalination

> Civil works

- » Linear transport infrastructures
- » Urban development works
- » Waste management and recovery
- » Industrial works
- » Large infrastructures
- » Mining
 - ▶ Soundings and exploration
 - ▶ Process plant
 - ▶ Water treatment plant

> Building

- » New residential construction
- » Industrial
- » Public services
- » Restoration of historic buildings
- » Complete remodelling

> Continuation of the improvement of the facilities at the Guadalmellato Dam (Cordoba)

Covering both lighting and safety, to facilitate the work and actions to be performed in the galleries inside the dam: protection with handrails, stairs and bars installed in open areas, as well as improved lighting and electrical installations, adapting the work to energy efficiency criteria.

The work was executed for the Guadalquivir Hydrographic Confederation (CHG).



> Cleaning of the silting up of the feed channel of the pumping station at the San Rafael de Navallana dam

For the Guadalquivir Hydrographic Confederation (CHG), through a JV, Magtel undertook the cleaning of the natural sediments accumulated in the section of the canal between the Navallana Dam and the Guadalquivir River to allow pumping from the latter and to accumulate water in the reservoir to alleviate the drought and take advantage of the river's occasional surpluses.



> Continuation of the improvement and restoration of the Villa del Río bridge over the Guadalquivir on the A-3101 road (Cordoba)

Construction of a temporary bridge of driven metal piles to divert traffic, next to the main bridge that is the object of the project. The improvement and restoration consists of increasing the width to allow two-way traffic to pass simultaneously and eliminating the current load limitation, while upholding the original aesthetics.



> Maintenance of networks of Empresa Municipal de Aguas de Cordoba (Emacsa):

Repair and renovation of the supply and sewerage networks in the city of Cordoba, adapting both infrastructures to the needs of the population and improving the service, as well as reducing the number of breakdowns.

Thus, among other actions, the maintenance of ornamental fountains and drinking fountains was done; repairs such as the fountain in Plaza Andalucía; the upgrading of the supply and sewerage networks in different areas of the city, the execution of new water connections for new constructions related to the expansion of the city, etc.

> Renovation of the supply network in the Las Quemadas Industrial Estate

Almost 4 km of supply pipes on several streets and more than 100 residential connections, replacing old fibre cement pipes with ductile cast iron.

> Renovation of the supply network in the Cerro Muriano neighbourhood (phase 3)

In order to improve the existing network, using the bursting technique in undeveloped areas and open-pit renovation in the remaining sections.

> Overhaul of the Trassierra road supply network

It also includes Portugal Street. Old asbestos cement pipes were replaced with new ductile cast-iron pipes.

> Overhaul of the sewerage collector in Calle San Juan Bautista de La Salle

Modernisation with trenchless technology by UV shooting and curing (414 metres DN500; 125 metres DN400).

> Overhaul of the sewerage collector on Calle Doña Berenguela

Reconditioning with trenchless technology via UV shooting and curing (552 metres 500/1000 ovoid; 83 metres 400/500 overflow; 32 metres DN300 collector), and 40 ml open-pit renovation in PVC Sanecor DN400 SN8.

> Maintenance of networks in the Encinares de Alcolea housing development

The infrastructure maintenance of the plots was carried out. The entire wastewater and water supply circuit, tank, pumping, etc. An electrical conduit and various civil works are also being executed.



Magtel



> Network maintenance of Empresa Metropolitana de Abastecimiento y Saneamiento de Aguas de Sevilla (Emasesa):

► Connections for Emasesa in Seville, Alcalá de Guadaira, Mairena del Alcor and Dos Hermanas

For more than 1500 users. They included supply, sewerage connections, re-establishment and disconnection of supplies.

► Execution works for the operation of Emasesa's meters and complementary works in Seville and 11 other towns

Installation, replacement and inspection of water meters and remote reading installations, supply inspections, detection and elimination of fraud, as well as official verifications by means of portable standard meters.

► Hydraulic improvement in the La Pilarica in Gines housing complex (Seville)

Replacement of sewerage and water supply networks with house connections on Narciso Mora Cano, La Pilarica, Manuel Causse Sales and Antonio Rubio Herrera streets in the municipality of Gines (Seville). Work implemented for Aljarafesa and the Gines Town Council.



> Urban development projects:

► Comprehensive remodelling of Calle Badajoz in Fuengirola (Malaga) and redevelopment of the Plaza de la Axarquía in Torre del Mar (Malaga) for its pedestrianisation

Consisting of:

> The renovation of water networks (separate networks), telecommunications and electrical grid (improvement of networks, underground instead of overhead), and paving

> For the Plaza de la Axarquía in the municipality of Vélez Málaga, an ornamental fountain was built, as well as underground containers, LED lighting and street furniture

► Redevelopment of neighbourhoods in Punta Umbría (Huelva)

Executed by the Magtel & Bifesa JV, the project was implemented for the Provincial Council of Huelva, the urban adaptation and redevelopment of degraded neighbourhoods in Punta Umbría with sanitation, street lighting, resurfacing, street furniture, playground equipment, bio-healthy games and sports courts.

► Urban development of the Aldea del Cano Industrial Estate (Cáceres)

Done for the Regional Government of Extremadura through the Magtel-TDS Ingeniería JV, consisting of the execution of supply networks, sewerage, medium-voltage electricity supply with overhead braiding, transformation centre and low voltage, street lighting, installation of a compact treatment plant, paving of pavements and roads, as well as the execution of a drive under the A66 dual carriageway.

► Redevelopment of La Florida (Seville)

Replacement of sewerage networks, piping and installation of lighting, traffic lights, paving and landscaping in La Florida, Menéndez Pelayo and Luis Montoto streets.

During the excavations, the remains of a Roman aqueduct were discovered and protected in coordination with the Regional Ministry of Culture.



> Services for activity in the Pyrite Belt

Support was provided for the processing, coordination of subcontractors and works and engineering for the pumping, treatment and discharge of accumulated water.

These projects will lead to the authorisation of discharges and the emptying of the mines, key milestones in their viability.

> Exploration drilling campaign for core extraction in the Tharsis Mine and La Zarza Mine (Huelva)

Work was done to adapt the mine, including the improvement of tracks, talus, berms and safety.

Wireline drilling was also done, with the recovery of mineral cores, and complementary ancillary works such as the construction of basins.

> Mining project engineering

Support was provided for the processing, coordination of subcontractors and engineering works for the execution of pumping, treatment and later discharge of accumulated water.

These projects will lead to the authorisation of discharges, as well as the emptying of the mines, which are key milestones in the viability of the mines.

Another highlight of the project is the search for energy solutions to achieve a self-sustainable mine.





> Building projects

► Construction of a residential complex with 88 subsidised housing units in Huerta de Santa Isabel

The building, seven storeys high, was built on plot 3.3 of the PP PAU O-3 for the Cordoba PGOU (General Plan for Urban Zoning). In addition to the 88 homes, 101 parking spaces, 88 storage rooms and one commercial space were built. The plot has a surface area of 4,655.41 m².

► Completion of 166 subsidised housing units and commercial premises in Ciudad Jardín de Poniente (Cordoba)

Work continued on the construction of 166 subsidised housing units (VPO), with storage rooms, 197 parking spaces, shops and offices, swimming pools and paddle tennis courts in the northwest district of Cordoba, specifically in block 23 of the PP.O-1 sector of the Cordoba PGOU.

Promoted by the cooperative El Arcángel San Gabriel, the project was executed as 6 independent buildings, each three storeys high.

► Construction of a new food market and municipal car park in Bujalance (Cordoba)

The earthworks and foundations for the construction of the new structure of this municipal building were executed for the Bujalance Town Hall.



► Execution of phase four of the 'clean point' and municipal warehouse in Dos Hermanas (Seville)

The following works were implemented:

- > Restructuring of main offices and workshops
- > Foundation work for the auxiliary metal structure
- > Installation of metal structures (workshop and warehouse partitions)
- > Paintings and coatings for main and secondary workshops and offices
- > Installation work of fire fighting devices



> Restoration projects

► Restoration and enhancement of La Pérgola del Paseo Alfonso XIII in Palma del Río (Cordoba)

Demolition of the roof and walls of La Pérgola building, and masonry and painting work.

La Pérgola is a building in the Palma del Río fairgrounds which caught fire, damaging its roof and walls. The aim of this work was to clean up and remove all the elements affected by the fire, as well as some masonry and painting work.

► Renovation and enhancement of the facilities of the municipal animal shelter in Marbella (Malaga)

Comprehensive remodelling of the facility done for the Marbella Town Hall, rearranging the uses of the plot, overhauling three existing buildings and also executing the project for six new buildings, two guard booths and two warehouses using modular construction.

This work will provide the facility with new services such as operating theatres, staff lounges, a shop and offices.



> 'We want to be leaders in Andalusia, guaranteeing sustainability at all times'



PIETRO TUCCI

Director of the Infrastructure Division

Magtel's commitment is stimulating and well represented by the objectives that appear in the Strategic Plan: Excellence, Commitment, Leadership, Innovation and Trust. These concepts have been fully taken on by all company employees, which will undoubtedly lead to the achievement of these ambitious goals.

Today, our group of companies is a benchmark in the business world and our presence in the infrastructure sector is already significant. We can consider 2022 a very positive year, as the division executed works worth EUR 23.6 million with a result of some EUR 1 million.

The most significant projects include: the completion of the 166 homes in the Ciudad Jardín de Poniente development and the 56 homes in the Atalaya de la Albaida development; the start of the 88 homes in the Residencial Santa Isabel development, all in the city of Cordoba. Reference should also be made to the start of other singular projects such as the clean point, the animal shelter and the new Abastos Market with the corresponding town councils of Dos Hermanas, Marbella and Bujalance.

This represents the consolidation of Magtel in the building sector, which, with the experience acquired, can undoubtedly be considered a major player in this sector.

In the field of civil works, it is worth highlighting the company's presence in the refurbishment of the Villa del Río Bridge, the modernisation of the Coín Irrigation Community facilities and the impressive drilling campaign in the Tharsis and La Zarza mines, both owned by the Magtel Group.

Finally, the significant presence in maintenance works with the water companies Emacsa and Emasesa.

By 2023, we intend to consolidate the challenges of previous years and acquire an even more significant presence in the market in general, by forging new alliances with major national companies and participating in larger and even more iconic projects.

We must take advantage of the large investments that are planned for these years, which are necessary for the proper development of the country and our community, to position ourselves where we deserve to be. We want to be leaders in Andalusia, but without losing sight of balanced growth and its corresponding profitability. All this without forgetting what is one of Magtel's greatest commitments in all its actions: the constant use of the essential means to guarantee sustainability at all times. I hope that we will put all our enthusiasm into the work that awaits us this year.

R&D&I DIVISION

The **added value**
of our **projects**



2022 was characterised by drafting the Division's Strategic Plan that will set the organisational, technical and financial strategies until 2027

In line with this, innovative solutions were refocused, taking into account the 'Horizon 3' projects of the company's business divisions and the rest of the Magtel Group's related companies. In this sense, the ideas that have been presented to regional, national and European calls for aid have been diversified, with propositions in the field of solar thermal technology with supercritical CO₂, green hydrogen, solar panels, ICTs in critical infrastructures for defence and in the agricultural sector in the scope of smart irrigation.

Highlights include the award in competitive competition of two projects in the Missions 2022 call, for which a significant number of the best technology companies in Spain submitted proposals, specifically the AD-GRHID project (on the green hydrogen value chain and microgrids) and the SUNRISE PV project (photovoltaic), and the award in a dual national and regional call (civil and defence) of the CRITICALFOG project (critical infrastructures).

Finally, the implementation of the last phase of the Life Green Sewer, Tec-Med and SIES 2022 projects has continued.

> Energy

- » Hydrogen
- » Solar thermal energy
- » Photovoltaic
- » Energy storage and electricity
- » Microgrids

> ICT

- » Industry 4.0
- » IoT
- » Monitoring systems
- » Predictive maintenance
- » Blockchain
- » Artificial intelligence

> Environment and infrastructure

- » Water treatment
- » Waste management and recovery
- » Desalination
- » Smart irrigation

> Companies and technology centres:



> Universities:



> Co-financing entities:



> Sunrise PV

Magtel's R&D&I Division will lead the Sunrise PV project to promote the new generation of photovoltaic technologies to reduce energy costs through circular strategies. The consortium is made up of eight companies: Magtel, Cegasa, CEN Solutions, Isfoc, Mondragon, Mugape, Soltec and Técnicas Reunidas.

This initiative, which will run until 2025, proposes solutions and innovations in the different phases of the value chain (solar panels, trackers and support structures, power converters, photovoltaic inverters, storage, plant operation and maintenance), focusing research on three points.

The first of these refers to new materials and manufacturing processes for photovoltaic modules and the rest of the components, achieving greater conversion efficiency and reduced manufacturing costs. The second issue concerns new operation and maintenance processes for a more durable, efficient and reliable use of PV systems.

Finally, research covers new processes for the recovery and reuse of critical materials and components in the solar photovoltaic value chain to increase their usefulness and improve the environmental impact of the technology.

These three lines of action converge in a final objective, which is to optimise the production of renewable energy - of photovoltaic origin - with a reduction in the energy and economic cost of the technology (improvement of the LCOE), as well as to make significant progress in the efficiency, flexibility and management of photovoltaic plants, in an environment of environmental, economic and social sustainability.

The Centre for the Development of Industrial Technology (CDTI), part of the Ministry of Economy, Industry and Innovation, awarded Magtel the Sunrise PV project, as part of Mission 1 'Strengthening technological capabilities for safe and sustainable energy autonomy (fusion, hydrogen and renewables)', within the framework of the Missions 2022 call for proposals.

This initiative, which focuses on the optimisation of energy production and costs, its integration into electricity grids, as well as the environmental impact of photovoltaic plants, was awarded an incentive of 4.2 million euros out of a total budget of 6.5 million euros.



> Ad-Grhid

Magtel is leading the Ad-Grhid project, which focuses on research and development into new hydrogen-related products and systems.

Magtel's R&D&I Division is leading the Ad-Grhid project awarded by the CDTI, also within Mission 1 'Strengthening technological capabilities for safe and sustainable energy autonomy (fusion, hydrogen and renewables)', in the Missions 2022 call for proposals.

This initiative covers an important part of the hydrogen value chain, aimed at researching and developing new products and systems. The project was awarded an incentive of EUR 3.3 million out of a total budget of EUR 4.8 million. The source was the Recovery and Resilience Fund under the Next Generation EU instrument.

In addition to Magtel, Ad-Grhid is made up of a consortium of seven other companies: Ingelectus, Eléctrica de Villanueva de Córdoba, H2B2 Electrolysis Technologies, Nasika, Premo, Protio Power and Tequinson Servicios.

The project, which will delve deeper into industrial research, is supported by the University of Cordoba and Loyola University, as well as the AICIA, AIMPLAS and IREC technology centres. Thus, a research ecosystem is being created that will enable us to respond to the ambitious challenges that lie ahead, including smart grids, through the management and engineering of integrated distribution networks with hybrid AC/DC microgrids; power electronics; the development of electrolyzers and fuel cells; and hydrogen storage.



Images courtesy of the University of Cordoba

The objectives of the project include improving the energy density of storage, decreasing the capital cost of solid oxide electrolyzers, increasing energy efficiency, and the supply continuity of microgrid services to distribution grids through renewable energy.

Research is encouraged for the development of high added value products of Spanish origin, which could be important in the transition towards a future with greater circularity in the use of materials and carbon-neutral energy consumption.



AD-GRHID

> Investing in research and development as a key link for creating long-term value for tech-based companies



JOSÉ LUIS ARANDA HIDALGO
Director of the R&D&i Division



Investments in research and development are important for companies, and even more so for technology-based companies.

Society is increasingly demanding, intelligent and committed to sustainability and the environment and, as a consequence, demands that companies offer products and services that, in order to integrate these premises, must necessarily be innovative.

This applies to all sectors, where developments are accelerating, and to all companies, whether they are margin-based, volume-based or a mix of both.

The amount to be invested in R&D&I must be even greater in those companies that want to base their growth on the margin, as they must present differentiated products to this ultra-demanding society, with high added value, committed to the environment, and in record time. These investments allow companies to be flexible and able to continuously evolve their products and services to adapt to frequent changes in demand.

But, how much to invest? It is assumed that investment should be high in those companies based on research and development, and at which the return on investment of each product developed could be estimated and quantified, for example, a drug resulting from discoveries in the laboratories of a pharmaceutical company. This exercise is not so easy in many other companies, which, although they define themselves as technological because of their areas of activity, many of their products are not the result of their internal research, but of their suppliers. At these companies, which are not based on in-house research, the qualitative part must be taken into account, which is difficult to estimate in numbers, where the positioning and brand image that can be generated by a pilot R&D&I project can be key to contributing to margin growth, developing a new service or product, or even adding a new

business area, diversifying the company, making it more resilient to continuous change and improving its chances of survival in an increasingly competitive market.

Estimating the qualitative value and the quantitative part to be capitalised in the future by commercial businesses as a consequence of R&D investment is extremely complex and uncertain, as success is not assured, and the return is long term. As a result, companies are often too conservative or reluctant to invest in R&D&i.

And, what to invest in? Depending on whether a company's foundations are R&D or not, it must invest to a greater or lesser extent in materials, but there is no doubt that, in both types of tech-based companies, the key investment is in the people with the talent to create and transfer knowledge within the organisation. This knowledge is acquired through complex R&D&i projects, which only highly qualified professionals are capable of leading.

There is clearly a close relationship between the image of companies and the increase in their investment in R&D, and while, years ago, investment in innovation and development was something extraordinary with which they sought to improve and strengthen their position in the market, today it is essential to remain competitive. Those organisations that manage to keep a constant growth rhythm are those that adapt to change, anticipate the future and are prepared for each new challenge that comes their way. They are organisations that do not improvise because they are currently launching the ideas that germinated years ago in their research.



> ANDALUCÍA

> ALMERÍA

c/ Sierra de Lújar nº 6,
04240 Viator, Almería
info.almeria@magtel.es

> CÁDIZ

P.I. El Palmar
c/ Matías Balsera, nº 14
11500 El Puerto
de Santa María, Cádiz
T. +34 956 309 821
info.cadiz@magtel.es

> CÓRDOBA

P.E. Las Quemadas
c/ Gabriel Ramos Bejarano,
nº 114, 14014 Córdoba
T. +34 957 429 060
info.cordoba@magtel.es

c/ Imprenta de la Alborada,
nº 114, 14014 Córdoba
T. +34 957 429 060
info.cordoba@magtel.es

P.I. San Carlos ctra.- Cádiz
km 398, Madrid 14015 Córdoba
T. +34 957 326 466
info.cordoba@magtel.es

> SEVILLA

Parque Aeronáutico
Aerópolis
c/ Juan Olivert, nº 9
41300 La Rinconada, Sevilla
T. +34 955 337 633
F. +34 955 337 632
info.sevilla@magtel.es

Centro de empresas
Pabellón de Italia
c/ Isaac Newton, nº 4
41092 Sevilla
info.sevilla@magtel.es

Avda. Edificio Centris II,
Glorieta Aníbal González,
Módulo 110, 41940
Tomares, Sevilla
info.sevilla@magtel.es

> GRANADA

P.I. Sierra Elvira
c/ Raja Santa, Naves 3 y 4
18230 Atarfe, Granada
T. +34 958 439 492
info.granada@magtel.es

> HUELVA

P.E. La Raya
c/ Industria, nº 21
21110 Aljaraque, Huelva
info.huelva@magtel.es

> JAÉN

P.I. La Zarzuela,
Nave 1, 23700
Linares, Jaén
info.jaen@magtel.es

> MÁLAGA

P.I. La Huertecilla
c/ Estado, nº 16-18
29196 Málaga
T. +34 952 179 901
info.malaga@magtel.es

> EXTREMADURA

P.I. Dehesa del Rey
Parque Isaac Newton nº 2,
nave 81, 06810
Calamonte, Badajoz
T. +34 924 324 915
info.badajoz@magtel.es

c/ Pedro Henleín, nº 38
10600 Plasencia, Cáceres
T. +34 927 904 549
info.caceres@magtel.es

> MADRID

c/ Velázquez, nº 106
1ª planta, 28006 Madrid
T. +34 910 574 185
info.madrid@magtel.es

c/ de la Plata, nº 4
28850 Torrejón de Ardoz,
Madrid
T. +34 910 861 042
info.madrid@magtel.es

> SEDES INTERNACIONALES

> ALEMANIA

Fürstenrieder Straße 279a
81377 Múnich, Alemania

> MARRUECOS

Centre NREA 183,
Avenue Prince Heritier
Nº Oficina 25, Planta Baja
90000 Tánger, Marruecos
info.marruecos@magtel.es

Putting their trust in us



Magtel